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ABSTRACT

This technical manual describes "The Arc's Self Determination Scale," a student self-report measure of self-determination designed for use by adolescents with disabilities, particularly students with mild mental retardation and learning disabilities. The test was designed to be a tool to enable students to become more self-determined by enabling them to evaluate their beliefs about themselves and their self-determination, work collaboratively with educators and others to identify individual areas of strength and limitations related to self-determination goals and objectives, and self-assess progress in self-determination over time. The scale is subdivided into four conceptually distinct subscales: (1) self and family care, which includes items that measure basic daily living activities, specifically routine personal care and family-oriented activities; (2) management, which includes items measuring the degree to which students handle their interactions with the environment; (3) recreation activity, which contains items that indicate the youth's recreational and leisure time activities; and (4) social and vocational activities, which contain items that measure the adolescent's social involvement and vocational goals, plans, and activities. The manual describes the theoretical basis for the scale, scale construction and development, administration, scoring and interpretation, test norms, and test reliability and validity. A copy of the adolescent version of the test is included. (Contains 106 references.) (CR)

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The Arc's Self-Determination Scale

Procedural Guidelines

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The Arc's Self-Determination Scale: Procedural Guidelines

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Contents

Acknowledgments v
Permissions vi

CHAPTER 1: Introduction and Overview 1
Use of The Arc's Self-Determination Scale 1
Improving the Validity of Self-Report Measures 3
Inappropriate Uses of The Arc's Self-Determination Scale 5
Appropriate Uses of The Arc's Self-Determination Scale 6
User Qualifications 8

CHAPTER 2: Theoretical Issues 11
Self-Determination: An Overview 11
What is Self-Determination? 12
Self-Determination as an Educational Outcome 14
Self-Determination Defined 17
Essential Characteristics of Self-Determined Behavior 18
Component Elements of Self-Determined Behavior 21
Why is Self-Determination Important? 35
Self-Determination and Quality of Life 36
Current Adult Outcomes for People with Disabilities 38
Inclusion, Normalization and Community Integration 41
Self-Determination and Youth with Mental Retardation 44

CHAPTER 3: Scale Construction and Development **51**
Identification of Scale Domains and Subdomains 51
Procedures 51
Measuring Self-Determined Behavior 53
Measuring Essential Characteristics of Self-Determination 54
Analysis 58
Results 59
Item Identification and Question Generation 60
Autonomy 60
Self-Regulation 64
Psychological Empowerment 66
Self-Realization 66
Pilot-Testing of The Arc's Self-Determination Scale 66
Field-Testing of The Arc's Self-Determination Scale 68

CHAPTER 4: Administration 73
Tips for Administration of the Scale 73

CHAPTER 5: Scoring and Interpretation 77
Scoring The Arc's Self-Determination Scale 77
Autonomy 77
Self-Regulation 78
Psychological Empowerment 91
Self-Realization 92
Entering Raw Scores on Protocol: Scoring Steps 1 and 2 93
Converting Raw Scores: Scoring Step 3 94
Interpreting Scores: Scoring Steps 4 and 5 94
How to Use Scores from The Arc's Self-Determination Scale 95

CHAPTER 6: The Arc's Self-Determination Scale Norms **97**
Sample Description 97
Scale Descriptive Statistics 100
Gender, Age and Type of Disability Effects 101
Statistical Analysis of Gender Differences 101
Summary of Gender Differences 102
Statistical Analysis of Age-related Differences 102
Summary of Age-related Differences 105
Statistical Analysis of Disability-related Differences 105
Summary of Disability-related Differences 107

CHAPTER 7: Reliability and Validity **109**
Validity of The Arc's Self-Determination Scale 109
Concurrent-Criterion-related Validity 109
Construct Validity 111
Discriminative Validity 111
Factorial Validity 111
Other forms of Construct Validity 111
Reliability of The Arc's Self-Determination Scale 112
Internal Consistency Reliability 112
Item Statistics by Domain 112

REFERENCES **119**

CONVERSION TABLES **129**

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Sigafoos, A.D., Feinstein, C.B., Damond, M., & Reiss, D. (1988). The measurement of behavioral autonomy in adolescence: The Autonomous Functioning Checklist. In C.B. Feinstein, A. Esman, J. Looney, G. Orvin, J. Schimel, A. Schwartzberg, A. Sorsky & M. Sugar (Eds.), ***Adolescent Psychiatry, Volume 15*** (pp. 432 - 462). Chicago: University of Chicago Press.

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Portions of the **Theoretical Issues** chapter were adapted from the following book chapters:

Wehmeyer, M.L. (in press). Self-directed learning and self-determination. In M. Agran (Ed.), ***Student -Directed Learning: A Handbook on Self-Management***. Pacific Grove, CA: Brooks/Cole Publishers.

Wehmeyer, M.L. (in press). Self-determination as an educational outcome: How does it relate to the educational needs of our children and youth? In D.J. Sands & M.L. Wehmeyer (Eds.), ***Self-Determination across the Lifespan: From Theory to Practice.*** Baltimore, MD: Paul H. Brookes Publishers.

Wehmeyer, M.L. (in press). Self-determination in youth with severe cognitive disabilities: From theory to practice. In L. Powers, G. Singer & J.A. Sowers (Eds.), ***Making Your Way: Promoting Self-Competence Among Children and Youth with Disabilities***. Baltimore, MD: Paul H. Brookes Publishers.

Chapter 1

Introduction and Overview

The Arc's Self-Determination Scale is a student self-report measure of self-determination designed for use by adolescents with disabilities, particularly students with mild mental retardation and learning disabilities. The Scale was constructed based on a definitional framework of self-determination as an educational outcome proposed by Wehmeyer and colleagues (Wehmeyer, 1992a, in press a, in press b; Wehmeyer, Kelchner & Richards, in press), described in the **Theoretical Issues** chapter of this guide. This framework defines self-determination as "*acting as the primary causal agent in one's life and making choices and decisions regarding one's quality of life free from undue external influence or interference*" (Wehmeyer, 1992a; in press b). An act or event is self-determined if the individual's actions reflect four *essential characteristics*: (1) the individual acts autonomously; (2) the behaviors are self-regulated; (3) the person initiates and responds to event(s) in a "psychologically empowered" manner; and (4) the person acts in a self-realizing manner (Wehmeyer, in press a; Wehmeyer, Kelchner & Richards, 1994). These *essential characteristics* emerge as students develop and acquire a set of component elements of self-determined behavior (e.g., choice-making, decision-making, problem-solving, goal-setting and task performance, self-observation, evaluation and reinforcement, internal locus of control, positive attributions of efficacy and outcome expectancy, self-awareness, self-knowledge). ***The Arc's Self-Determination Scale*** operationalizes this framework to provide a tool for students with disabilities, educators and researchers. The remainder of this chapter discusses the potential use and misuse of the Scale, ways to improve the reliability and validity of self-report measures, and identifies user qualifications. The framework upon which the Scale is based is presented in the **Theoretical Issues** chapter.

Use of The Arc's Self-Determination Scale

Assessment has multiple uses in education, including providing data for diagnostic and placement decisions, evaluating individual strengths and weaknesses, planning educational and treatment strategies, and evaluating intervention effectiveness. As with any such process, assessment can be used inappropriately, for example

to exclude individuals from given services or to maintain outdated or overly intrusive interventions or placements. When considering the assessment of self-determination, there is a need to be cognizant not only of the possible contributions of such an effort, but the potential limitations of the exercise as well. These issues are compounded when the assessment in question is a self-report measure. ***The Arc's Self-Determination Scale*** was designed to be a tool to enable and empower students to become more self-determined by providing a vehicle by which they can, with appropriate supports and accommodations: (1) evaluate their own beliefs about themselves and their self-determination; (2) work collaboratively with educators and others to identify individual areas of strength and limitations related to self-determination goals and objectives; and, (3) self-assess progress in self-determination over time. In addition, ***The Arc's Self-Determination Scale*** can benefit students by providing researchers a tool to evaluate which environments, instructional strategies and curricular materials enhance or impede self-determination.

The voices of students with disabilities are often the least frequently heard or solicited voice in the educational planning, decision-making, and program implementation process. This is adequately illustrated by the current state of affairs regarding student involvement in educational planning meetings. The reality for too many students with disabilities is that they are, essentially, left out of this process (Gillespie & Turnbull, 1983; Van Reusen & Bos, 1990). The implementation of P.L. 94-142 opened the door for student involvement in educational planning and decision-making by requiring the participation of students in planning meetings, whenever appropriate. Unfortunately, as Gillespie and Turnbull (1983) pointed out, little effort was expended to determine just when *whenever appropriate* was and most students were either uninvolved in the process, or involved only peripherally. Van Reusen and Bos (1990) stated that "student involvement [in educational planning], even at the secondary level, is for the most part either nonexistent or passive" (p. 30). If this is true for student-involvement in the IEP meeting, it is equally the case for the educational program planning and implementation process, despite evidence that such involvement would benefit students and result in more positive educational outcomes.

The Arc's Self-Determination Scale was conceptualized as a vehicle to reverse this trend by providing a self-report indicator of self-determination. The intent of the process is first and foremost to provide a voice for students with disabilities in this important area. However, there is considerable debate regarding the use of self-report measures, particularly with students with mental

retardation. The **Scale Construction and Development** chapter provides a detailed discussion of the procedures used to determine the most reliable and valid formats to measure self-determination. However, an overview of the use of self-report measures, and methods to improve their validity, may be useful for individuals wanting to utilize the Scale.

Improving the Validity of Self-Report Measures

There is a growing recognition in educational research that the student is an active participant in the learning process and student-variables must be accounted for; students formulate goals, attend to selected events, employ strategies (effective or not), process information and apply their beliefs about themselves and their environments to the learning process (Schunk, 1992). While attention to student perceptions related to learning and success has increased steadily in the educational literature, this has often not been the case for students with cognitive disabilities. However, this too is changing and there is an emerging body of research addressing student perceptions of academic and other outcomes. One of the reasons this effort has lagged is the pervasive skepticism regarding the validity of perceptions from students with cognitive disabilities. It is widely recognized, for example, that students with mental retardation tend to be outerdirected, heavily influenced by adults, and overly acquiescent. The prevailing sentiment, based upon an assumption of deficits, has been that people with cognitive disabilities are not reliable or valid reporters of their own perceptions.

When researchers and educators question the validity of the perceptions of students with cognitive disabilities, what they often mean is that these students hold unrealistic perceptions. While this may be true, this does not negate the validity of the student's perception. A perception is invalid when it does not match the student's true beliefs or feelings, not when it is unrealistic.

The Arc's Self-Determination Scale has been constructed in such a manner to limit problems with reliability and validity. However, it should be recognized that it provides an indication of students' perceptions of their self-determination. As the definitional framework upon which this assessment is based proposes, individual perceptions are critical aspects of becoming self-determined. Students can possess all the skills necessary to be self-determined, but if they are never allowed to employ these skills, may grow to believe that they are not capable. Thus, student perceptions become a particularly important aspect to understand

when trying to promote self-determination. It is our belief that a presumption that students with disabilities are inaccurate in reporting the degree to which they are autonomous, self-regulating, psychologically empowered and self-realizing is inaccurate and unfair. Unfortunately, there is little evidence to prove or refute this.

Assor and Connell (1992) provided a number of suggestions for improving the validity of students' self-reports:

- Remember and communicate that what you want is for students to report what they truly believe about themselves. Accurate reports do not necessarily reflect real or actual performance.
- Ask students in a way that helps them understand what you are after in the assessment process. There is nothing hidden or secret about the process. We are not seeking some psychologically defined variable but simply what the student feels or believes.
- Emphasize that, no matter what students answer, as long as it is truly what they believe or feel it is the right answer. Ensure confidentiality and put students at ease.
- Communicate to students what the information will be used for and why they are being asked these questions. Get the student involved in the interpretation process as well as the assessment process.
- Groups with too many students are a problem because students feel that others might see their answers. Keep groups as small as possible.

The key to ensuring valid self-reports is to convince students that what they believe is very important. In order to convince students, one must genuinely believe this. This means acting on students' perceptions in a manner that is respectful, nonjudgemental, and promotes student involvement.

Inappropriate Uses of The Arc's Self-Determination Scale

The Arc's Self-Determination Scale was designed for two principal purposes; (1) to assess individual student strengths and weaknesses in self-determination and facilitate student involvement in planning educational and treatment strategies; and, (2) as a tool to conduct research on self-determination. ***The Arc's Self-Determination Scale*** has been constructed and normed with these uses in mind and other uses of the Scale are inappropriate. It

is important to stress that the Scale is not a diagnostic or prescriptive tool. At the very least, the difficulties with reliability and validity from self-report measures make diagnostic, prescriptive, or placement decisions based on this data inappropriate and unprofessional. Although scoring provides opportunities for comparisons between the individual student and the sample used to provide normative data for the Scale, we make no assumption about a "normal" or "expected" amount of self-determination. Instead, when used to identify student strengths and limitations, users should look at repeated measures across time and examine individual improvements.

One reason it is unfair or inappropriate to make decisions about students based on Scale scores is that the Scale makes no attempt to identify the reasons for the student's lack of self-determination. As Mithaug and colleagues (Wolman, Campeau, DuBois, Mithaug & Stolarski, 1994) have described, becoming self-determined requires both the capacity and the opportunity to do so. Thus, a lack of self-determination may be a result of inadequate capacities to perform skills related to self-determination, inadequate opportunities to develop, acquire or employ these skills, or both. The end result is the same, but intervention to address the problem is different. ***The Arc's Self-Determination Scale*** is a vehicle for eliciting discussion about the cause of a low level of self-determination and potential interventions to remedy this situation, but not to identify such causal relationships. It is therefore inappropriate to assume that low scores on ***The Arc's Self-Determination Scale*** reflect problems that are only student-based.

A final consideration when using ***The Arc's Self-Determination Scale*** is the difference between group scores and individual performance. Scores that fall in the extremes are generally minimized when one has a large group to consider. The sheer number of students' scores will minimize the effect of a few outliers on the mean score. This serves to minimize the impact of error inherent in most attempts to assess students' abilities, such as circumstances when the student is angry, sleepy or sick, answers just to "get through" the process, does not understand a question and marks any answer, or responds in an acquiescent manner. Although the Scale's administration procedures attempt to control for these circumstances, it is not possible to keep these factors completely out of the assessment process. It is critical that the person working with the student be alert to factors that might impact the student's ability or willingness to answer in a valid manner. In addition, however, it is the responsibility of this person to explore the validity of scores that are considerably higher or lower than the norm to ensure that an outside agent was not in

action. This can only be accomplished working with the student as an equal partner.

Appropriate Uses of The Arc's Self-Determination Scale

The Arc's Self-Determination Scale has potential to assist students and educators in their efforts to promote self-determination as an educational outcome. The Scale has utility as one component in an overall effort to promote self-determination by involving the student in his or her educational planning and decision-making process. In addition, the Scale can provide the information needed to develop goals and objectives related to self-determined behavior. Items on the Scale were written at a fourth-grade reading level (lower when possible). The Scale has been field-tested and validated with students with cognitive disabilities receiving special education services around the country. The administration process includes the latitude for educators to provide a series of accommodations, from reading the test items and explaining various words and concepts for the student to transcribing student responses if necessary (see **Administration** chapter).

The first potential use of ***The Arc's Self-Determination Scale*** is to generate discussion about items the student finds interesting, problematic, or wants to discuss more broadly. Ideally, a student could use the Scale with minimal instruction from a teacher or another person. However, students will vary considerably in the level of support they need to complete the assessment. Many students with mild levels of cognitive disabilities should be able to work through the Scale independently or semi-independently. This process, in and of itself, has merit. The authors' experiences with the Scale indicated that students were motivated to engage in the activity because it focused on their interests, abilities and feelings. On numerous occasions students indicated that no one had ever asked them about their feelings about control over and choices in their lives. If students are particularly sensitive about or focused on "scores" and "comparisons" between themselves and others, the Scale could be completed, not scored, and each topic area could form the basis for discussion about students' beliefs, desires, abilities, limitations, and future plans.

The second use of the Scale involves scoring it and comparing Total, domain and subdomain scores with Scale norms and, more importantly, examining individual strengths and weaknesses across the domains. The normed data is provided only as a point of comparison, not so that students who perform below the mean should feel a sense of failure or otherwise use the information in a

pejorative manner. Normed data can provide students and teachers with honest feedback upon which to base future interventions.

One reason that students lack self-determination is that they experience overprotection from family members and school personnel. If students invest in the assessment process as something they want to do to benefit themselves, they will use information comparing their performance with that of others as a call to action. It is critical that the teacher or person working with the student provide feedback that directs the student toward this conclusion. Otherwise, they may use the information to reinforce feelings of insecurity and failure. The educational literature shows quite clearly that students learn from "failure" experiences when such experiences are mitigated and students are enabled to repeat the experience with success. Less than optimal performances in any area of ***The Arc's Self-Determination Scale*** should be followed by learning opportunities and experiences that enable the student to make progress in that particular area.

In this light, students could work collaboratively with the teacher to score the assessment (because of the need to make the assessment usable as a research tool, its scoring is most likely too complex for self-scoring) and discuss the outcomes, both in comparison with data from the Scale norms and looking at individual student strengths and areas of need. During this process, teachers should refer back to the questions used in each domain and subdomain to find examples for students to understand what they do well and where they might need work. Such discussions should be supportive, positive, and empowering, not negative and disempowering. While seemingly paradoxical, poor performances on ***The Arc's Self-Determination Scale*** could be empowering. Individuals who are placed in control or charge of solving their own problems feel empowered. It is not students' performance, *per se*, that is important, but the opportunity to set them in control of their learning experience.

Any use of ***The Arc's Self-Determination Scale*** with individual students should focus on potential educational goals and objectives. This discussion, in turn, can consider possible educational programs and activities to address and meet these goals and objectives. The **Scoring and Interpretation** chapter of this guide provides a detailed description of each domain and subdomain and how scores should be interpreted. It is not realistic to turn directly to Scale questions to generate goals and objectives because the items were selected to be representative of a broader area. For example, the first six questions form a subdomain under the *Autonomy* domain called *Independence*: Personal Care and Family-Oriented Functioning. As is described in the **Scoring and**

Interpretation chapter, the six questions reflect performance in self-care and general family focused activities, like shopping, cleaning and cooking. If a student scores low based on these six questions, it is likely that he or she is not performing other similar activities. Thus, instructional emphasis would focus broadly on the student learning and the opportunity to engage in the types of activities that the Scale items represent.

Beyond individual student evaluation and planning, ***The Arc's Self-Determination Scale*** has potential utility as a research instrument. Instruction and intervention in self-determination have not progressed further because few means exist to evaluate the efficacy of interventions and the impact of environments and experiences on student self-determination. ***The Arc's Self-Determination Scale*** has been standardized to allow such use by educational and psychological researchers. It is important that researchers recognize that the Scale is a measure of student perceptions of self-determination. The **Reliability and Validity** chapter of this guide provides information on internal stability, construct and content validity and other information useful to researchers.

User Qualifications

The end-users of this Scale are intended to be students with disabilities or educational and psychological researchers. However, we recognize that if ***The Arc's Self-Determination Scale*** is to be used to enable and empower students with disabilities to become more self-determined, there will need to be an intermediary agent, in most cases a teacher. For all practical purposes, it will be the teacher who identifies the Scale as educationally useful, obtains copies of this guide and Scale protocols, provides the support and accommodations necessary for the student to complete the Scale in a reliable and valid manner, and facilitates the discussion with the student regarding how to use the information the Scale provides. The teacher's role in this process is as critically important as it is in more traditional models of teaching and instruction.

As such, we have identified teachers and researchers as the primary "users" of ***The Arc's Self-Determination Scale*** and direct comments regarding user qualifications to these parties. Use of the Scale does not require specific credentials or training in psychometric evaluation. Because the Scale is a student self-report measure and the process has been designed to elicit student involvement and discussion, it is inadvisable to be too prescriptive

about its implementation. The Scale has been field-tested with both group and individual administration and can be equally suited for either circumstance. The most important "qualifications" for users are difficult, if not impossible, to teach or train: (1) acceptance of the importance of student involvement in educational planning and decision-making; (2) commitment to involving the student as an equal partner in the educational process; and, (3) respect for people with disabilities as equal and contributing members of our society. In addition to these characteristics, it is essential that the user be familiar with the Scale and its implementation. Scale users are encouraged to read this procedural guide to gain an understanding of the construct the assessment attempts to operationalize and to gain a full understanding of Scale administration, scoring and interpretation.

Chapter 2

Theoretical Issues

Self-Determination: An Overview

On June 30, 1978, Ruth Sienkiewicz-Mercer, who until that time had lived at the Belchertown State School for people with mental retardation, moved into an apartment in Springfield, Massachusetts. She described the first days of her new life in these words:

> "I had never had a place of my own. As a result, I had never worried about buying groceries and planning meals, paying the rent and the phone bill, balancing a checkbook, making appointments, figuring out how to keep the appointments I made -- all of the things adults just do. But starting out in society at the age of twenty-eight, after living at a state institution for the mentally retarded for sixteen years, I found these everyday tasks confusing and wonderful and frightening" (Sienkiewicz-Mercer & Kaplan, 1989, p. 202).

Confusing, wonderful and frightening might be as apt a description of adulthood as any forwarded by academicians or philosophers. Reading Sienkiewicz-Mercer's observations of her new life, perhaps the most noticeable thing is the universality of her experiences. Remove references to disability and these experiences parallel those of most young adults as they venture on their own for the first time. There is, however, something that young people who venture into adulthood and succeed have in common. Mithaug (1991) pointed out that "in every school in this country a few children succeed regardless of the instruction they receive. Teachers identify these students early because they have purpose in their lives. They know what they like, what they can do, what they want and how to get it" (p. ix). These young people are, Mithaug concluded, self-determined. Appropriately, leaders in the Department of Education have identified self-determination as a critical outcome for youth with disabilities. Halloran (1993), discussing the transition services requirements of the 1990 Individuals with Disabilities Education Act (IDEA), identified self-determination as the "ultimate goal of education" (p. 214). Ward

(1988) called the acquisition of self-determination "a critical -- and often more difficult -- goal for people with disabilities" (p. 2).

The education system is not the only system to recognize and emphasize the importance of self-determination for people with disabilities. In the 1992 Amendments to the Rehabilitation Act, which funds the Vocational Rehabilitation system, the introduction stated:

> Disability is a natural part of the human experience and in no way diminishes the rights of individuals to live independently, enjoy self-determination, make choices, contribute to society, pursue meaningful careers and enjoy full inclusion and integration in the economic, political, social, cultural and educational mainstream of American society" [Sec. 2 (a)(3)(A - F)].

This language was repeated in the introduction to the 1993 reauthorization of the Developmental Disabilities Act to provide a consistent vision for Americans with disabilities across agencies and funding streams.

That her life experiences ill-prepared her to enter adulthood is not unique to Sienkiewicz-Mercer, nor indeed to people who lived in institutions. It is the experience of too many people with disabilities whose lives are controlled by others, for whom decisions are made, and who experience few opportunities to make choices based on their interests and abilities (Kozleski & Sands, 1992; Kishi, et al., 1989; Stancliffe, 1995; Stancliffe & Wehmeyer, in press; Wehmeyer & Metzler, 1995). The reason self-determination should become the "ultimate" goal of education is that too many people with disabilities remain dependent on caregivers, service-providers, and over-loaded social systems to do for them what they should, and could, be enabled to do themselves (Wehmeyer, 1992b). From cradle to grave, people with disabilities are reliant upon dependency-creating systems -- educational systems, rehabilitation systems, family systems -- to meet their needs. As a result, many people with disabilities fail to reach their maximum levels of independence, productivity, inclusion and self-sufficiency -- outcomes that, ironically, are the main objective of most such systems.

What is Self-Determination?

In 1990, the U.S. Department of Education, Office of Special Education Programs, Secondary Education and Transition Services Branch funded a series of national model demonstration projects to

promote self-determination for youth with disabilities. This funding initiative brought increased awareness of the importance of this topic to youth with disabilities and resulted in the reconceptualization of self-determination as an educational outcome. Historically, the term self-determination has referred to the right of nations to self-governance. The term was appropriated by disability rights advocates and people with disabilities to refer to their "right" to have control in their lives (e.g., Nirje, 1972; Williams, 1989). In this context, self-determination and empowerment are often used interchangeably. Empowerment is a term usually associated with a social movement and typically is used, as Rappaport (1981) stated, in reference to actions that "enhance the possibilities for people to control their lives" (p. 15).

A second use of the term has appeared in the literature pertaining to motivation, particularly the work of Deci and colleagues (Deci & Ryan, 1985). In this research, self-determination refers to an internal need contributing to an individual's performance of intrinsically motivated behaviors. According to these theorists, humans are inherently active and internally motivated to engage in activities for which there are no obvious external rewards. Deci and Ryan (1985) listed children's propensities to want to learn, undertake challenges and solve problems as examples of such internally motivated behaviors. Intrinsic motivation is the "energy source that is central to the active nature of the organism" (Deci & Ryan, 1985, p. 11) and is defined as "the innate, natural propensity to engage in one's interests and exercise one's capacities, and in so doing, to seek and conquer optimal challenges" (Deci & Ryan, p. 43). Accordingly, Deci and Ryan (1985) defined self-determination as "the capacity to choose and to have those choices, rather than reinforcement contingencies, drives or any other forces or pressures, be the determinants of one's actions. But self-determination is more than a capacity; it is also a need. We have posited a basic, innate propensity to be self-determining that leads organisms to engage in interesting behaviors" (p. 38).

The present emphasis on self-determination within special education and rehabilitation owes more to the emphasis of self-determination as interchangeable with empowerment. Research on self-determination as a motivational construct has highlighted the importance of promoting educational practices that lead to enhanced internal motivation for students with disabilities (e.g., Deci & Chandler, 1986). This initiative emerged as the logical extension of a changing view of disability in our society, the altered role of education and rehabilitation within this

conceptualization of disability, and the empowerment of people with disabilities to speak for themselves (Wehmeyer, in press a).

As Ward has documented (Ward, in press), the self-determination initiative is an outcome of the empowering social movements of the preceding decades (e.g., the independent living, disability self-help and self-advocacy, and normalization movements). Unfortunately, this heritage did not provide an adequate definitional framework within which to promote self-determination. Advocacy efforts to empower individuals with disabilities necessarily focused on obtaining equal rights and opportunities to be self-determined. Such efforts have spawned legislative and judicial responses, like the Americans with Disabilities Act (ADA), that guarantee citizens with disabilities equal rights, equal access to services and equal treatment in every day affairs. However, in order for people with disabilities to take full advantage of these protections, they must be enabled to do so. The ADA illustrates the limitations to an empowerment emphasis of self-determination. The Act guarantees equal employment protections to individuals with disabilities who are otherwise qualified to perform the job. It does not apply to someone who is not capable of performing the job (Wehmeyer & Ward, 1995). Likewise, access to opportunities to control one's life, to make choices, solve problems, make decisions and set goals are useless until the person holds the attitudes and has the abilities he or she needs to take advantage of such circumstances.

Halloran (1993) suggested that actualizing the emphasis on self-determination would "require a major change in the current approach to educating, parenting, or planning for children and youth with disabilities" (p. 214). To achieve the outcome that children leave school as self-determined individuals, and to provide opportunities for adults with disabilities to become self-determined, there needs to be a definitional framework upon which to build interventions, evaluate the efficacy of strategies and treatments, and conduct research (Wehmeyer, 1992a).

Self-Determination as an Educational Outcome

Although the current emphasis on self-determination owes much to the empowerment movements of the last few decades and research in motivation, there is a gap between these conceptualizations and the conceptualization of self-determination as an educational or adult outcome. Wehmeyer (1992a; in press a) proposed that, for purposes of education and rehabilitation, self-determination is (a) best defined in relationship to characteristics of a person's behavior, (b) viewed as an adult outcome, and (c) achieved through

lifelong learning, opportunities and experiences. Before exploring this definitional framework, it is worth discussing alternative ways in which self-determination could be conceptualized.

There is a temptation to define self-determination in terms of specific behaviors like problem-solving, assertiveness or decision-making. This temptation is strong because the image of a self-determined person conjured up by most people is that of a successful person using such behaviors. However, after further reflection it becomes evident that self-determination cannot be defined as a set of behaviors for two reasons: (1) any behavior can be self-determined; and (2) both the occurrence and non-occurence of a behavior can be self-determined.

In the first instance, although there are behaviors that are typically viewed as self-determined (making choices, problem-solving, self-advocacy, etc), when one attempts to compile a list of behaviors that could "define" self-determination, that list will grow exponentially to encompass virtually any behavior in a person's repertoire. For example, speaking up for yourself is generally identified as a self-determined action, and in most cases it is. However, if "speaking up for yourself" is a defining variable of self-determination, then people who cannot speak are, *a priori*, eliminated from being self-determined. One might then point out that it is not the act of "speaking" itself that is self-determined, but the intention of that act. As such, we can expand the list to include "speaking up for yourself", "using sign language to communicate your wants", "using [a specific augmentative communication device] to communicate", and so forth. The list quickly expands to the point of being unwieldy and cumbersome.

One solution to this problem is to broaden the behavior(s) identified as defining self-determination. So, for example, instead of "speaking up for oneself" as the defining variable, this could be rewritten as "communicating for oneself" as the behavior of note. However, this is an unsatisfactory solution for several reasons. First, while some behaviors might be amenable to such summation, others that could clearly be interpreted as self-determined are not. Consider a situation where two consenting adults with disabilities decide to get married. In the aftermath of this decision, they meet heavy resistance from friends, family members and professionals who predict disaster and threaten to prohibit the marriage. In response to this, the couple elopes to Nevada and they are married the next week. Is, then, "getting married" a behavior we should add to our definition? Obviously not, as many people choose to remain single or live together without getting married. What then is the broader behavior to be identified? In essence the couple was acting on a decision, exerting control over their lives and acting on

preferences and dreams. None of these adequately describe why the act was self-determined, and several (e.g., exert control, act on dreams) would hardly be described as "behaviors." We are left with the unsatisfactory option of listing, ad infinitum, behaviors like "getting married" with mutually exclusive behaviors like "not getting married" also on the list.

This illustrates the second barrier to defining self-determination by behaviors. In most cases one can identify acts that are intuitively self-determined, but mutually exclusive! The example of getting married or staying single is one such situation. Returning to the previous example of a self-determined behavior, speaking up for yourself, there are situations where doing so is not a wise course of action and the preferred option might be to remain silent. So, for example, if a person knows that speaking up for his or her rights might unduly harm someone else, that person might choose to sit quietly. As such, one can describe situations where the behaviors of "speaking up for one's rights" and "not speaking up for one's rights" are both self-determined actions. Finally, defining self-determination as a set of behaviors fails to take into account cultural and regional differences. A common example of such differences is that although looking someone directly in the eyes when speaking to that person is a self-determined action in many cases, in some Native American cultures it is a sign of disrespect and would not be viewed as self-determined behavior.

There is also a tendency to attribute the description "self-determined" only to successful people who act in successful ways. This, however, is an inaccurate characterization of self-determination. Research in the area of goal-setting and achievement emphasizes that goal-oriented behavior can have (a) the desired outcomes, (b) unintended outcomes or (c) no outcome, and each of these outcomes may be beneficial or not. So too, self-determined behavior may have multiple outcomes. Returning to the example of the couple who eloped to be married, this may have been a reasonable or unreasonable action based on the circumstances and, independent of the reasonableness of the action, the marriage may succeed or fail.

A second option is to define self-determination as a characteristic or trait of an individual. This is, perhaps, more satisfactory than defining it by behaviors, but there are problems that remain with this approach. Positing that human behavior is motivated by needs, drives, traits or impulses has been criticized as inherently circular. Bandura (1977) pointed out that in such theories, "inner determinants often were inferred from the behavior they supposedly caused, resulting in description in the guise of explanation" (p. 2). Self-determination as a trait or personal

characteristic could only be inferred from the presence of behaviors (e.g., problem-solving, choice-making, goal setting) the trait or characteristic presumably caused. Furthermore, theories proposing the existence of drives, traits, impulses or needs have not overcome the criticism that they fail to account for the marked variability in human behavior across time and environmental conditions. It is not the presence of motivated behavior that is questioned, but whether it is useful to ascribe such behaviors to drives, traits, needs or impulses. It is almost impossible to describe self-determination as a characteristic of a person without entering this morass.

Self-Determination Defined

To circumvent the problems associated with defining self-determination as either a set of behaviors or as a characteristic of an individual, we have defined this construct according to characteristics of actions or events. Self-determination refers to "acting as the primary causal agent in one's life and making choices and decisions regarding one's quality of life free from undue external influence or interference" (Wehmeyer, 1992a; in press b). An act or event is self-determined if the individual's action(s) reflected four essential characteristics: (1) the individual acted autonomously; (2) the behaviors were self-regulated; (3) the person initiated and responded to event(s) in a "psychologically empowered" manner; and (4) the person acted in a self-realizing manner (Wehmeyer, in press; Wehmeyer, Kelchner & Richards, 1994). As the description "essential" suggests, we propose that self-determined behavior reflects all four of these characteristics. They represent a set of attitudes (psychological empowerment and self-realization) and abilities (behavioral autonomy and self-regulation) that must be present if a person is to be self-determined. To the degree that a person consistently (not to be confused with unfailingly) exhibits self-determined actions, he or she can be construed as being self-determined.

Deci and Ryan (1985) emphasized the importance of the belief that one causes things to happen in one's life for intrinsic motivation. Causal agency implies that an outcome was purposeful and the action performed to achieve that end. A causal agent is someone who makes or causes things to happen in his or her life (Wehmeyer, Kelchner & Richards 1994). The emphasis on causing things to happen in (rather than controlling) one's life is an important distinction because there are times when even the most self-determined person chooses to relinquish actual control over actions. Wehmeyer and Berkobien (1991) pointed out that if a person is having his or her gall bladder removed, he or she may

want to have control over the decision to undergo this procedure and choose the surgeon to perform the procedure, but if that person is wise he or she will certainly relinquish control over the procedure itself to the surgeon!

This definitional framework has been evaluated empirically, as described in **Chapter 3**. We have also examined the relationship between several of these component elements. Wehmeyer (1993) found that adolescents with mental retardation and learning disabilities had more barriers to effective career decision-making (self-regulation) than peers without disabilities, and that for all students an internal locus of control (psychological empowerment) was strongly correlated with positive career decision-making ($r = .52$). Similar relationships extend into adulthood, as Wehmeyer (1994) found that perceptions of psychological empowerment (locus of control) differed significantly based on employment status. Individuals with developmental disabilities employed competitively held significantly more positive (internal) perceptions of control than did peers employed in sheltered workshops or unemployed.

Likewise, Wehmeyer and Kelchner (1994) found that individuals with mental retardation generated fewer and less sophisticated solutions in social problem-solving situations (self-regulation) and that locus of control orientation, self-efficacy, (both psychological empowerment), general self-esteem and domain specific measures of problem-solving self-concept (both self-realization) contributed significantly to the variance of total problem-solving scores. These findings suggest that the characteristic elements of self-determination are related but contribute uniquely to self-determination (Wehmeyer, Kelchner, & Richards, 1994).

Essential Characteristics of Self-Determined Behavior

Behavioral Autonomy

Sigafoos, et al. (1988) stated that "human development involves a progression from dependence on others for care and guidance to self-care and self-direction" (p. 432). The outcome of this progression is autonomous functioning or, when describing the actions of individuals achieving this outcome, behavioral autonomy. Lewis and Taymans (1992) defined autonomy as "a complex concept which involves emotional separation from parents, the development of a sense of personal control over one's life, the establishment of a personal value system and the ability to execute behavioral tasks which are needed in the adult world" (p. 37). The word "autonomy" derives from the Greek words "autos"

(meaning self) and "nomos" (meaning rule) and refers to the condition of living according to laws given oneself (Haworth, 1986). Within the definitional framework for self-determined behavior, a behavior is autonomous if the person acts (a) according to his or her own preferences, interests and/or abilities, and (b) independently, free from undue external influence or interference.

Sigafoos, et al. (1989) operationalized the concept of behavioral autonomy, identifying four behavioral categories; self- and family care activities, self-management activities, recreational activities, and social and vocational activities. Self- and family care activities involve daily activities, including routine personal care and family-oriented functions like meal preparation, care of possessions, performing household chores, shopping, and home repairs. Management activities involved the degree to which a person independently handled interactions with the environment. These activities included the use of community resources and the fulfillment of personal obligations and responsibilities. Recreational activities reflecting behavioral autonomy are not specific actions but the degree to which an individual used personal preferences and interests to choose to engage in such activities. Likewise, social and vocational activities included social involvement, vocational activities and the degree to which personal preferences and interests were applied in these areas.

Wehmeyer and Kelchner (1995), using a measure developed by Sigafoos, et al., (1989) found that people with mental retardation experience limited autonomy in each of the above conceptual categories. Lewis and Taymans (1992) arrived at the same conclusion when examining the behavioral autonomy of youth with learning disabilities. This is consistent with findings from other researchers, using different measures, that students with learning disabilities and emotional disorders experience limited behavioral autonomy (Deci, Hodges, Pierson & Tomassone, 1992; Zettin & Murtaugh, 1990).

Self-Regulated Behavior

Whitman (1990) defined self-regulation as "a complex response system that enables individuals to examine their environments and their repertoires of responses for coping with those environments to make decisions about how to act, to act, to evaluate the desirability of the outcomes of the action, and to revise their plans as necessary" (p. 373). Self-regulated behaviors include self-management strategies, (including self-monitoring, self-instruction, self-evaluation and self-reinforcement), goal setting and attainment behaviors, problem-solving behaviors and observational learning strategies (Agran, in press). Self-regulated behaviors include a

combination of behavioral and cognitive strategies to achieve the end that individuals employ the strategies they need to become the causal agent in their lives (Agran, in press; Wehmeyer, in press a).

Acting in a Psychologically Empowered Manner

Psychological empowerment is a term referring to the multiple dimensions of perceived control, including its cognitive (personal efficacy), personality (locus of control) and motivational domains (Zimmerman, 1990). Essentially, self-determined people act on the basis of a belief that they (a) have control over circumstances that are important to them (internal locus of control), (b) possess the requisite skills to achieve desired outcomes (self-efficacy) and (c) if they choose to apply those skills, the identified outcomes will result (outcome expectations).

A number of researchers in self-determination have stressed that acting in a self-determined manner requires a combination of abilities and attitudes (Ward, 1988; Wehmeyer, 1992a). Most people can readily identify someone who possesses one but not the other. A person who knows an effective decision-making strategy (ability) but who does not believe that if that strategy is applied it will achieve the desired outcomes (attitude) is not likely to make decisions. In the same situation, someone who believes that he or she is effective and can influence outcomes by acting, but who lacks the requisite decision-making skills may be more likely to act but no more likely to come to a satisfactory outcome from that action.

The inclusion of psychological empowerment as a defining variable for self-determined behavior illustrates the importance of both cognitive and behavioral contributions to this framework. Bandura (1977) argued that a "theory of human behavior cannot afford to neglect symbolic activities" (p. 13). Agran (in press) noted the importance of cognitive behaviors in achieving self-regulation, including the use of metacognitive, self-instruction, self-reinforcement, and observational learning strategies. Such "cognitive" aspects of self-determined behavior are not easily observed, but, in our view, are essential if someone is to be self-determined.

Self-Realization

Finally, self-determined people are self-realizing in that they use a comprehensive, and reasonably accurate, knowledge of themselves and their strengths and limitations to act in such a manner as to capitalize on this knowledge. This self-knowledge and self-understanding forms through experience with and interpretation of one's environment and is influenced by evaluations of significant

others, reinforcements and attributions of one's own behavior (Wehmeyer, in press a).

Component Elements of Self-Determined Behavior

We have suggested elsewhere that there are a number of component elements whose development are integral to the emergence of the four essential characteristics of self-determination (Wehmeyer, in press). As previously discussed, these component elements cannot be used to define self-determination, but the acquisition of each is necessary, if not sufficient, for the expression of self-determined behavior. Doll, Sands, Wehmeyer and Palmer (in press) described the unique development of each of these component elements. It is at this level that instructional efforts to promote self-determination will be focused. Although not intended as an exhaustive taxonomy, the following component elements seem particularly important to the emergence of self-determined behavior:

- choice-making
- decision-making
- problem-solving
- goal-setting and attainment
- self-observation, evaluation and reinforcement
- internal locus of control
- positive attributions of efficacy and outcome expectancy
- self-awareness
- self-knowledge.

As called for by Halloran (1993), a purposeful, properly implemented educational strategy to promote self-determination will place instructional emphasis on students' acquisition of these component elements. To date much of the instructional emphasis in the area of self-determination has been with adolescents with disabilities. The development and acquisition of these component elements is, however, lifelong and begins early in life. Some elements have greater applicability for secondary education, while others will focus more on elementary years. Promoting self-determination as an educational outcome will require not only a purposeful instructional program, but one that coordinates learning experiences across the span of a student's educational experience!

Choice-Making

People with disabilities frequently cite the opportunity to make choices as an important part of the right to self-determination. In many ways, choice-making has become the lightening-rod for action to promote self-determination. More emphasis has been placed on this component element as critical to the quality of life for people with disabilities than most other elements combined, particularly for individuals with severe disabilities. There have been training programs developed to teach choice-making and increase choice-making behaviors (Gothelf, Crimmins, Mercer & Finocchiaro, 1994; Parsons, McCarn & Reid, 1993; Reid, Parsons & Green, 1991; Warren, 1993), efforts to increase the diversity of choices for people with disabilities (Brown, Belz, Corsi & Wenig, 1993), discussions about the importance of making choices for people with disabilities (Ficker-Terrill & Rowitz, 1991; Guess, Benson & Siegel-Causey, 1985; Shevin & Klein, 1984; West & Parent, 1992), procedures developed to assess individual preferences and choices (Mithaug & Hanawalt, 1978; Stancliffe, 1995) and research efforts to determine the degree to which people with disabilities express choices and preferences.

Guess, Benson & Siegel-Causey (1985) framed choice-making within the "broader philosophical issues that pertain to personal autonomy" and proposed three levels of choice-making: (a) choice as indicating preferences; (b) choice as a decision-making process; and (c) choice as an expression of autonomy and dignity. Reid, Parsons and Green (1991) identified the instruction of choice-making as consisting of two basic components: (a) the act of choosing; and (b) the identification of a preference. The first component involves "emitting specific behaviors necessary to select one item or event from two or more alternatives" (Reid, Parsons & Green, 1991, p. 3) while the second directs that action toward the selection of preferred outcomes.

These descriptions illustrate the importance of experiences early in life that enable children to identify their own preferences, based on their unique interests and abilities, and allow them the opportunity to select activities based on these preferences. While many individuals with disabilities lack the skills to select between alternatives or cannot communicate specific preferences effectively, there is little doubt that virtually every human being expresses preferences in one way or another. The limited research that exists suggests that too frequently the preferences of individuals with disabilities are ignored or not acknowledged, due either to the highly structured nature of most environments to which individuals with disabilities have access or to ineffective means of communicating these preferences (Houghton, Bronicki &

Guess, 1987; Kishi, Teelucksingh, Zollers, Park-Lee, & Meyer, 1988; Wehmeyer & Metzler, 1995).

Ironically, these circumstances create learning, living and working environments that frustrate professionals' efforts to promote independence and limit the effectiveness of most interventions. Increased opportunities and capacities to express preferences and make choices have been linked to reductions in problem behaviors exhibited by individuals with severe disabilities (Gardner, Cole, Berry & Nowinski, 1983; Grace, Cowart & Matson, 1988; Munk & Repp, 1994), increased participation of children, youth and adults with and without disabilities in appropriate or adaptive tasks (Koestner, Ryan, Bernieri & Holt, 1984; Swann & Pittman, 1977; Realon, Favell & Lowerre, 1990) and more positive educational or achievement outcomes (Koenigs, Fielder & deCharmes, 1977). In short, choice-making is an effective management strategy as well as a valued skill (Dunlap, 1990).

Kohn (1993) provided another reason to implement strategies that involve students in choices and decisions in the classroom; it is beneficial to the teacher. He quotes one educator who stated:

> I've been teaching for more than 30 years and I would have been burned out long ago but for the fact that I involve my kids in designing the curriculum. I'll say to them, "What's the most exciting way we could study this next unit?" If we decide their first suggestion isn't feasible, I'll say, "Okay, what's the next most exciting way we could study this?" They always come up with good proposals, they're motivated because I'm using their ideas, and I never do the unit in the same way twice (Kohn, 1993, p. 12).

Shevin and Klein (1984) suggested that there were three essential components to a choice-fostering curriculum; (a) cognitive/discrimination skills cluster; (b) affective skills cluster; and (c) generalization of skills in real-life experiences. Under the first of these clusters, Shevin and Klein identified "those skills which enable the learner to understand and discriminate from among alternatives as a prerequisite to acting." They included in this cluster skills like visual, auditory, and tactile discrimination, and an understanding of concepts like "choose" and "more." Affective skills in the second cluster involve student identifications of likes, dislikes, interests, abilities, wants, needs and, ultimately, preferences.

The skills identified in these first two clusters represent instructional opportunities for early childhood and elementary

school years. Shevin and Klein (1984), along with others, emphasized the importance of learning such skills in contexts that promote generalization and provide real life opportunities to experience choices. They also stressed integrating choice-making opportunities throughout the school day and listed five keys to maintaining a balance between student choice and professional responsibility:

1. incorporating student choice as an early step in the instructional process;
2. increasing the number of decisions related to a given activity which the student makes;
3. increasing the number of domains in which decisions are made;
4. raising the significance in terms of risk and long-term consequences of the choices which the student makes; and
5. clear communication with the student concerning areas of possible choice, and the limits within which choices can be made (Shevin & Klein, 1984, pp. 164).

Kohn (1993) suggested that school programs can provide opportunities for meaningful choices in both academic and behavioral areas. In academic areas, students can participate in choosing what, how, how well and why they learn. The determination of what one learns is fairly straightforward, and has become a key element in promoting student involvement in educational planning and decision-making (Martin, Marshall & Maxson, 1993). Allowing students to choose how they learn certainly entails more dedication and effort on the part of the teacher, but it is reasonable to provide choices between working alone, in small groups or as a class, or to provide alternatives as to where students sit while they work (Kohn, 1993).

Allowing student choice in how well a student is doing reflects the emphasis in student-directed learning on self-monitoring, self-evaluation and self-reinforcement. Perhaps the most overlooked aspect of structuring choice in the classroom is getting students involved in a discussion of why they are learning. Deci and Chandler (1986) suggested that providing rationales for activities to learners is one important way of increasing student motivation to learn and participate. Telling students that they have to learn something "because it is for their own good" or other more controlling reasons will limit student self-determination. Indeed, Deci and Chandler (1986) suggested that being honest and straightforward about rationales for specific learning activities moves an activity from being externally imposed to self-regulated.

Decision-Making

There is, thematically and pragmatically, considerable similarity between choice-making and decision-making. There is further overlap with the third component element, problem-solving. All three are important to becoming autonomous and self-regulating. Choice-making refers to a process of selecting between alternatives based on individual preferences. Decision-making skills refer to a broader set of skills that incorporate choice-making as but one component. Beyth-Marom, Fischhoff, Jacobs Quadrel & Furby (1991) suggested that most models of decision making incorporate the following steps:

a) listing relevant action alternatives;
b) identifying possible consequences of those actions
c) assessing the probability of each consequence occurring (if the action were undertaken);
d) establishing the relative importance (value or utility) of each consequence;
e) integrating these values and probabilities to identify the most attractive course of action (p. 21).

Baron and Brown (1991) proposed that "deficient decision-making is a serious problem throughout society at large and [this] problem needs addressing in childhood or adolescence." Rightly or wrongly, today's youth are seen as lacking the basic skills to make effective decisions, a perception reinforced constantly by news reports. If this is true for America's youth as a whole, it is especially true for children and youth with disabilities. Even when they are allowed to make choices, most persons with disabilities are prohibited from making decisions, due primarily to an assumption of incompetence. This is particularly so if the individual has a cognitive disability. For example, Wehmeyer and Metzler (1995) found that youth and adults with mental retardation were more often than not provided the opportunity to make choices about events such as the leisure activity in which they engaged (75% of 4,544 people indicated that they had made this choice unassisted or with assistance) or what clothing they wore (83%), but were largely uninvolved in major decisions that impacted their lives. Only 33% of this group indicated they had a voice in deciding where they lived, 44% indicated they had a role in the decision about where they work and 44% reported that they had provided consent (either unassisted or with assistance) for their most recent medical procedure.

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However, a competency model of disability proposes that "like any other person, a person with a disability should be expected to make all decisions about his or her life" (Accreditation Council on Services for People with Disabilities, 1992). What distinguishes decision-making from choice-making is that it refers to a process with specific steps or components. There are a number of algorithms that provide a structure for this process, but they typically focus on a series of interrelated learning activities. Students need to learn to identify the area of concern or, more specifically, define the issue or problem about which a specific decision is to be made. Secondly, students must possess the skills that enable them to collect information about their specific situation and to use this information to identify options for consideration. Once options are clarified, students need to learn to identify and evaluate the consequences and outcomes of action based on the various options. When those consequences have been detailed, choice-making skills can be applied to select a specific alternative. Finally, students must implement this plan of action.

While emphasis on choice-making should occur early in a student's educational career, specific decision-making skills are probably better addressed at the secondary level. Beyth-Marom, et al. (1991) suggested that in order to achieve generalization, decision-making and problem-solving need to be taught in terms of familiar knowledge domains. By this, they refer to the efficacy of addressing such areas within the context of a life-skills or functional education curriculum, with decision-making skills learned by applying the process to real world issues. Once again, the educational planning and decision-making process is an excellent context within which to teach decision-making skills.

Problem-Solving

The third element in this triumvirate is problem-solving skills. Decision-making is a process of weighing the adequacy of various solutions. A problem is "a task whose solution is not immediately perceived" (Beyth-Marom, et al., 1991). More specifically however, a problem "is a specific situation or set of situations to which a person must respond in order to function effectively in his environment" (D'Zurilla & Goldfried, 1971).

It is the situational, response-oriented aspect of problem-solving skills that distinguish them from decision-making skills. Humans are presented with problems that require resolution on a day-to-day basis. Problem-solving skills have typically focused on such problem resolution in two primary contextual domains: impersonal problem-solving and interpersonal or social problem solving. The former has drawn the most attention from researchers and studies

have focused on an individual's ability to complete puzzles and anagrams or solve mathematical problems. Such problems typically have only one correct solution with answers remaining the same over time (Wheeler, 1991).

In contrast, problems involving interactions between people are complex, with multiple processing demands and decision points, and have numerous possible solutions that may vary according to time or setting (Wehmeyer & Kelchner, 1994). While both types of problem-solving skills are important for self-determination, social problem-solving skills are critically important for the emergence of self-determined behavior.

Social problem-solving, alternatively referred to as interpersonal cognitive problem-solving, emphasizes cognitive and behavioral strategies that enable individuals to interact with one another and to cope in an increasingly social world. Much of the focus for intervention in special education has been strictly on social skills training. While such instruction is important, in the absence of similar emphasis on social problem-solving skills, it is insufficient to redress deficits in social interactions exhibited by youth and adults with disabilities (Chadsey-Rusch, 1986; Park & Gaylord-Ross, 1989; Wehmeyer & Kelchner, 1994).

Like the choice-making process, problem-solving skills are embedded into virtually all decision-making procedures. The first step in most interventions to promote decision-making skills is to identify the issue at hand or the problem. As it is conceptualized by most researchers, however, the decision-making process begins with the listing of already identified options. Pragmatically, one must first engage in problem-solving before decision-making can occur. Thus, the instructional emphasis for problem-solving overlaps considerably with that for decision- and choice-making.

Such instructional emphasis typically includes three focal points: (a) problem identification; (b) problem explication and analysis; and, (c) problem resolution. Izzo, Pritz and Ott (1990) suggested that the characteristics of an instructional environment contribute significantly to the attainment of these skills. Instruction should occur within environments that emphasize the student's capability to solve problems, promote open inquiry and exploration, and encourage generalization. Teachers should serve as role models by verbalizing the problem-solving steps used on a day-to-day basis and should make sure that students are provided adequate support and accommodations.

Goal Setting and Attainment

To be the causal agent in one's life, a person needs to acquire the skills necessary to plan, set and attain goals. The term goal refers

to a construct that incorporates multiple meanings and, according to Locke & Latham (1990) "encompasses the essential meaning of terms such as intention, task, deadline, purpose, aim, end and objective. All of these have in common the element that there is something that the person wants to achieve" (p. 2). Causal agency implies that an outcome was purposeful and a given action performed to achieve that specific outcome. This requires that actions be goal-directed.

Such action can be conscious or unconscious, although the latter is typically associated with the more organismic-biological connotation of goal-directed action as the "organisms need to sustain its life by taking the actions its nature requires" (Locke & Latham, 1991). A subset of these goal-directed actions involve purposefully goal-directed actions, where goal attainment is the result of a conscious, purposeful action (Locke & Latham, 1991). Although self-determined behaviors are purposeful or intentional, it is incorrect to imply that all such actions, as well as all goal-directed actions, are consciously intended. Locke and Latham (1991) pointed out that control over many actions becomes indirect because that action is, in some sense, habituated. An example these authors use is that when a person moves his or her arm, there is typically no conscious intent to move each muscle that controls the arm movement. Instead, such actions are automated and although the intent was to move the arm, much of the action was not consciously intended.

A second issue that speaks to a similar topic is that self-determined, and goal-directed, behaviors are not always successful or reach the intended goal. There are a number of reasons that this might be the case but it does not abrogate the self-determined or goal-directed nature of the behavior. Self-determined behavior cannot be judged or determined by the relative success of the action just as goal-directed action cannot be determined by the achievement of the specific target or objective.

Goal setting theory focuses on the underlying assumption that goals are regulators of human action. This is true for educational motivation and achievement. For example, Schunk (1985) found that student involvement in goal setting improved performance on math activities for students with learning disabilities. The effects of goal setting on behavior is itself a function of goal difficulty and specificity as well as previous experiences with the activity or action. Goal attainment is typically a function of two related aspects of goals; content and intensity. Goal content refers to the topic of the goal while goal intensity reflects that priority of a goal in the person's hierarchy of goals. There are considerable between-individual differences in these aspects, and goal

attainment or achievement will be affected by the salience and importance of the topic and the intensity of the individual's desire to achieve the goal.

Educational efforts to promote goal-setting and attainment skills will concentrate on the identification and enunciation of specific goals, the development of objectives and tasks to achieve these goals, and the actions necessary to attain a desired outcome. Martino (1993) identified several important considerations in goal identification and enunciation:

1. Goals should be specific and measurable.
2. Goals should be attainable.
3. Goals should reflect something that the student wants to improve on.
4. Goals should have specific, practical starting and finishing dates.
5. Goals should be written.
6. Goals should be stated in terms of anticipated outcomes.
7. Students should be able to visually track their progress on the goal.

The educational planning and decision-making process is an enterprise that revolves around goal-setting, implementation and evaluation. The involvement of students in this process, from elementary school through graduation, provides the best educational environment to promote effective goal setting and attainment skills. Teachers and parents can model effective skills like identifying short and long-term goals, describing objectives, implementing plans based on these goals and objectives and reevaluating and refining these plans.

Self-Observation, Self-Evaluation and Self-Reinforcement Skills

The definitional framework of self-determined behavior identified such action as self-regulated, and self-regulated behavior as constituting, at the very least, the essential skills of self-observation, self-evaluation and self-reinforcement. Whitman (1990) defined self-regulation as "a complex response system that enables individuals to examine their environments and their repertoires of responses for coping with those environments to make decisions about how to act, to act, to evaluate the desirability of the outcomes of the action, and to revise their plans as necessary." It is within this broader context that self-regulation skills are important for self-determined behaviors. Whitman goes on to maintain that, in order to show dynamic self-regulation, individuals must make decisions concerning what skills to use in

which situation, examine the task at hand and their strategic repertoire, and formulate, enact and evaluate a plan of action, with revisions if necessary. Self-regulation differs from automatic processing in that it requires focused attention and continuous decision-making among alternative responses (Whitman, 1990). Self-regulation includes the skills of self-monitoring (observation of one's social and physical environment), self-evaluation (making judgments about the acceptability of this behavior through comparing information about what one is doing with what one ought to be doing) and, based upon the outcome of this self-evaluation, self-reinforcement.

Internal Locus of Control

The final four component elements of self-determined behavior focus not on skill development, but on the attitudinal component characteristics of self-determined behavior; that the person initiated and responded to the event(s) in a "psychologically empowered" manner; and acted in a self-realizing manner. Although actual control over a given event is not necessary for self-determination, as one may choose to relinquish such event specific control to another person, the belief that one has control over outcomes that are important to one's life is critical to self-determined behavior.

People who hold such beliefs have been conceptualized as having an internal locus of control. Rotter (1966) defined locus of control as the degree to which a person perceives contingency relationships between his or her actions and outcomes. Mercer and Snell (1977) described the construct in the following manner:

> When a person is characterized as having an internal locus of control, he views reinforcement as primarily the consequences of one's own actions; whereas, if a person is characterized as having an external locus of control, reinforcement is viewed as the result of outside forces, e.g., luck, fate, chance and/or powerful others (p. 183).

The locus of control construct has proven to be a powerful heuristic for explaining, at least partially, individual and group variability in motivation, personality and learning. Internal locus of control has been linked to adaptive outcomes, including positive educational and achievement outcomes and increased time and attention to school-related tasks (Lefcourt, 1976). External orientations have, conversely, been linked to increased impulsivity in decision-making, distractibility and sociometric ratings of rejection from peers (Ollendick, Greene, Francis & Baum, 1991; Ollendick & Schmidt, 1987). Research data has, therefore,

validated the intuitive hypothesis that students who feel in control of their lives and their destiny perform better than students who feel that other people or circumstances dictate their lives.

There has been limited (comparatively) exploration of the locus of control construct for individuals with disabilities, particularly youth and adults with cognitive disabilities. At least part of the reason for this is that when people with disabilities are seen from a disease or deficit model, there is limited emphasis on the individual's beliefs and perceptions. Wehmeyer (1994a) noted:

> One factor that has undoubtedly contributed to the lack of research in this area is that the measurement of locus of control is reliant upon self-report assessments. There is a pervasive, if not clearly articulated, mistrust of self-report measures with people with mental retardation based on several factors. Practitioners and researchers have tended to dismiss personal reports from such individuals as unreliable. Individuals with mental retardation were seen as intellectually incompetent and this incompetence extended to the individuals' reports of beliefs, emotions, feelings, or perceptions. Their opinions and perceptions were not accorded value and worth and were not solicited or encouraged (p. 528).

Within a competence model of disability, however, the beliefs, opinions and perceptions of people with disabilities become "increasingly important and valued, not imbued with assumptions of incompetence" (Wehmeyer, 1994a). Difficulties in measurement remain, but the importance of individuals' beliefs about themselves and their environments make the effort worthwhile.

The limited research that exists suggests that people with disabilities hold perceptions of control that are more external, and thus more maladaptive, than non-disabled peers. Students with learning disabilities (Dudley-Marling, Snider & Tarver, 1982) and mental retardation (Wehmeyer, 1994b) have been found to have more external scores than non-disabled peers, even when compared to same age peers who experienced school failure but were not receiving special education services. Such maladaptive perceptions were found to contribute to ineffective career decision-making for youth with mental retardation and learning disabilities (Wehmeyer, 1993). Wehmeyer (1994c) also found that adults with cognitive and developmental disabilities who were competitively employed held significantly more adaptive or internal perceptions

of control than did peers who worked in sheltered environments or who were unemployed.

The role of educators in promoting internal perceptions of control, as well as adaptive efficacy and outcome expectations, a positive self-awareness and a realistic self-knowledge, is more complex than just providing adequate instructional experiences. An internal locus of control emerges as children make choices about things that they do every day, like selecting clothing, and these choices are honored and supported. To understand contingency relations between their actions and positive outcomes, children have to learn to distinguish between outcomes due to ability, effort and chance. There is a typical developmental course for this progression. Very young children attribute positive outcomes solely to effort and do not take into account ability or chance. As they get older, children begin to distinguish between chance or luck and effort or ability, and in early adolescence, begin to differentiate between effort and ability. Children with disabilities may need specific instruction at these critical time periods to ensure that they can realistically assign causality to their actions.

It is particularly important to consider the learning environment and to evaluate its effect on student perceptions of control. Teachers who use an overly controlling style or whose classrooms are rigidly structured limit the development of positive perceptions of control. This does not mean that classrooms must become chaotic; allowing greater control is not the same as relinquishing all control and abolishing rules and regulations (Deci & Chandler, 1986). Instead, classrooms can be structured such that students can perform more actions for themselves, like obtaining their own instructional materials.

Additionally, an educational program that emphasizes problem-solving, choice- and decision-making and goal-setting and attainment skills using student-directed learning activities will provide ample opportunities for students to learn that they have control over reinforcers and outcomes that are important to them.

Positive Attributions of Efficacy and Expectancy

Self-efficacy and efficacy expectations are two related constructs, introduced by Bandura (1977), that have been linked together for the present discussion. Self-efficacy refers to the "conviction that one can successfully execute the behavior required to produce a given outcome" (Bandura, 1977, pp. 193). Efficacy expectations refer to the individual's belief that if a specific behavior is performed, it will lead to the anticipated outcome.

The two are individually necessary, but not sufficient, for behavior like goal-directed and self-determined actions. A person has to believe that: 1) he or she can perform a specific behavior needed to achieve a desired outcome; and 2) if that behavior is performed, it will result in the desired outcome. If a person does not believe that he or she can perform a given behavior, (independent of the validity of that belief), then consequently he or she will not perform that action. However, a person may believe that he or she is capable of performing a given behavior, but due to past experience may not believe that a desired outcome will occur even if that behavior is exhibited and, subsequently, will not perform the action. For example, a student with a disability may not believe that she has the social skills necessary to initiate a conversation with non-disabled peers, and will refrain from initiating such actions. On the other hand, that same student may believe that she has the requisite skills, but having been ignored in the past, may believe that she will be ignored again and, likewise, refrain from initiating the action.

Like perceptions of control, perceptions of efficacy and expectancy have been linked to academic achievement and persistence at academic activities (Lent, Bron, & Larken, 1984; Ollendick & Schmidt, 1987). Very little research has examined the self-efficacy and efficacy expectations of individuals with disabilities. Most of the extant literature in the area of learning disabilities focuses on changing self-efficacy and efficacy-expectations through environmental or instructional modifications (Schunk, 1989). Wehmeyer (1994a) found that individuals with mental retardation held less adaptive attributions of efficacy and expectancy than did non-disabled peers and that such attributions became less adaptive as the student got older, a trend not consistent with typical developmental functions for these attributes.

Attributions of efficacy and expectancy emerge as children and adolescents interact with the world around them. One holds positive beliefs of efficacy and efficacy expectations because one has acquired specific skills, exercised such skills and experienced the outcomes anticipated by such activities. Several factors limit the acquisition of these perceptions by people with disabilities. As Kennedy (1993) highlighted, overprotection by well-intentioned others frequently limits opportunities for children and youth with disabilities to engage in actions that would enable them to establish a sense of efficacy and efficacy expectations. The general assumption of incompetence spawned by the disease and deficit models of disability have, as previously suggested, limited even the opportunity for people with disabilities to learn skills, like goal-

setting and decision-making skills, that would contribute to efficacy expectations.

Overly structured environments, including many special education classrooms, limit the opportunities to acquire skills related to choice and decision-making, hinder the development of an internal locus of control, and prohibit students from learning that they are effective and that their behaviors can have beneficial outcomes. Again, an educational program that focuses on promoting self-determined behavior through the means detailed above will provide the opportunities students need to develop adaptive perceptions of self-efficacy and efficacy expectations.

Self-Awareness and Self-Knowledge

In order for one to act in a self-realizing manner, one must possess a basic understanding of one's strengths, weaknesses, abilities and limitations as well as knowledge about how to utilize these unique attributions to beneficially influence one's quality of life. At the most fundamental level, in order to be self-determined one must first possess a sense of self, referring to the establishment and awareness of oneself as possessing a unique identity. Two features of a sense of self that are, in essence, prerequisite to the exhibition of self-determined behavior are: 1) a sense of separateness from others; and, 2) a stable identity over time. Individuals must be cognizant of their uniqueness and separateness from others and must understand that one has a permanence which endures despite changes in circumstances (Damon, 1983). Without these notions, Damon suggests, "it would be impossible to organize one's personal experience in any meaningful sense." Without this sense of self, it is not possible for one to be self-determined.

However, this sense of self emerges in very early childhood development, probably by 2 years of age. Beyond just this prerequisite sense of self, children need to develop self-awareness and self-understanding; to learn what they do well, what they need assistance with, where their interests lie and how to use their talents to their advantage. For children and youth with disabilities, this is particularly important. To be successful, students with disabilities must understand and learn to accommodate for limitations introduced by their disability. Many practitioners identify this as a critical need, but unfortunately it is too often articulated in a negative sense, e.g., that a student needs to learn that s/he can't do something.

It is in this area that student-directed learning experiences become particularly important. Students do not learn what they can or cannot do from lectures, role playing, social skills simulations or any other more traditional teacher-directed

instructional activities. They learn, as do all people, through their own interpretation of events and experiences. At any given time, the New York Times Bestseller list for non-fiction contains one or more books that are classified as "popular psychology" and provide interested parties the chance to learn more about themselves and, if necessary, change this or that aspect of their personality, intelligence or, often as not, self-image. Most adults who want to improve some aspect of their lives, change something they do not like or generally explore themselves do so in a self-directed manner.

This process is not one of pure introspection, however, and does not focus exclusively or even primarily on an understanding of limitations. In many cases, students with disabilities are quite able and more willing to identify what they do poorly than those things they do well. The specter of having a disability, as pictured in disease or deficit models, hovers over any given circumstance and students dwell more on what they are unable to accomplish than what they can achieve. Since special education is essentially remediative in nature, this is hardly surprising. It is particularly important for adolescents to focus on developing their strengths so that they can accomplish more in these areas. Lipsky and Gartner (1989) pointed out that if universities adopted the same structure that the special education process uses, college students would enter university and spend four years trying to improve, even slightly, on the activities and subjects they have the most trouble doing, while basically ignoring areas of strengths and interests. Secondary special education programs should adopt, instead, the model used in postgraduate education, where students focus almost exclusively on their strengths and interests and attempt to utilize these skills to their benefit.

Why is Self-Determination Important?

People with disabilities have made it clear that self-determination is an outcome that is important to them. Williams (1989) stated "We want it [self-determination as a complete way of life] not just for ourselves but for all people with disabilities. Indeed, we want it for all people -- period. And, we want it now" (p. 16). Kennedy (1993) said that "what people need to realize is that self-determination can be different things to different people. All people should have the opportunity to be self-determining, based on what that means for them" (p. 11). It is not difficult to understand that when a person has limited control and choice in his

or her life, the reclamation of such control and choice becomes an issue of intense importance.

In our opinion, the call for self-determination by people with disabilities is, in and of itself, sufficient justification for focusing on this outcome. However, there are other reasons that it is important to focus limited resources, including time, personnel and money, to achieve self-determination for individuals with disabilities. These reasons include the importance of self-determination to experience an enhanced quality of life and integration into one's community and recent findings concerning adult outcomes for people with disabilities.

Self-Determination and Quality of Life

We have opted to frame causal agency within the concept of quality of life because we believe that, along with its historical ties to the empowerment movement, self-determination is associated with quality of life issues. Schalock (1990) provided six fundamental quality of life principles: 1) Quality of life for persons with disabilities is composed of those same factors and relationships that are important to persons without disabilities; 2) Quality of life is experienced when a person's basic needs are met and when he or she has the same opportunity as anyone else to pursue and achieve goals in the major life settings of home, community and work; 3) Quality of life factors vary over the life span of a person; 4) Quality of life is based on a set of values that emphasize consumer and family strengths; 5) Quality of life is determined by the congruence of public values and behavior, and; 6) Quality of life is a concept that can be consensually validated by a wide range of persons representing a variety of viewpoints of consumers and their families, advocates, professionals and providers.

Like self-determination, quality of life focuses attention on both subjective and objective indicators. Dalkey (1972) stated that "quality of life is related not just to the environment and to the external circumstances of an individual's life, but whether these factors constitute a major share of an individual's well being, or whether they are dominated by factors such as a sense of achievement, love and affection, perceived freedom and so on" (p. 9). An individual's quality of life is determined across settings, environments and opportunities. We suggest that causal agency is a critical element contributing to an individual's enhanced quality of life and that virtually all choices and decisions at some level contribute to some aspect of quality of life, be it physical, psychological or social. Conceptualizing self-determination as

contributing to an enhanced quality of life reflects the importance of both major decisions which occur infrequently (buying a house, medical decisions) and daily choices that are less consequential but more frequent, such as what to wear or eat or how to spend one's free time.

The measurement of both quality of life and self-determination share considerable overlap. Both examine issues of choice and access to various activities and emphasize individual perceptions about and self-reports of experiences and expectations. Research into the former suggests that people with disabilities experience fewer choices and have more limited access to desired activities than peers without disabilities. For example, Stancliffe and Wehmeyer (in press) reviewed the literature related to choice-making by people with mental retardation and developmental disabilities. They concluded that, despite evidence that they could make effective choices, people with mental retardation and developmental disabilities too infrequently had such opportunities. Wehmeyer and Metzler (1995) found that 66% of more than 5,000 people with mental retardation and developmental disabilities did not choose where they were currently living, 88% did not choose their current staff person, 77% did not choose their present roommate and 56% did not choose their current job or day activity.

Similarly, Wehmeyer, Kelchner and Richards (in press) found that even in a sample of more than 400 members of self-advocacy groups, people with mental retardation who are most likely to be self-determined, a large percentage did not have choices in their lives. For example, while 30% of the group indicated they did not choose where they lived, only 15% indicated they had selected where they live unassisted. Comparatively, Kozleski and Sands (1992) used the same survey with adults without disabilities and found that only 10% indicated they had no choice in where they lived, 13% had no choice in their roommate, and no respondents indicated that someone else had selected their job or day activity.

Although we have focused most of our research efforts toward examining self-determination of people with mental retardation, these experiences are not unique to people with cognitive disabilities. Jaskulski, Metzler, & Zierman (1990) surveyed more than 13,000 people with developmental disabilities to determine the degree to which they were integrated into their communities, functioned independently and led productive lives. Forty-one percent of this sample had a physical disability, 10% experienced a sensory disability, 6% an emotional disability and 42% were identified as having mental retardation. Thus, 57% of the sample did not have a cognitive disability. From this group (respondents without mental retardation), 41% indicated they had no choice in

their current living arrangement. Sands and Kozleski (1994) analyzed differences between adults with disabilities and adults without disabilities on multiple indicators of quality of life. They concluded that "most importantly, the degree of choice which individuals with disabilities were able to exercise was significantly limited when compared to adults without disabilities. This lack of opportunity to make choices extended from relatively innocuous activities such as decorating a bedroom to such fundamental choices as to who shares that bedroom" (p. 98).

By virtually all standards and conceptualizations, there is a positive relationship between increased opportunities to make choices and decisions and take more control over one's life and an enhanced quality of life. The research literature on quality of life for people with disabilities and the self-determination of people with disabilities send the same, clear message...people with disabilities lack the opportunity to experience control and choice in their lives, and their lives would be more fulfilling and satisfying if this were not the case.

Current Adult Outcomes for People with Disabilities

Another variable influencing the current emphasis on self-determination and justifying the commitment of resources to this end is current adult outcomes for people with disabilities. Until recently it has been difficult to evaluate this, if for no other reasons than very few researchers cared to ask and definitional inadequacies limited investigation. To evaluate the degree to which individuals with cognitive disabilities are self-determined one must piece together findings from school follow-up/follow-along studies regarding student outcomes as adults, studies comparing individuals with disabilities and non-disabled peers on certain relevant social-psychological measures (e.g., locus of control, self-concept) and the few studies that have evaluated opportunities for students and adults with cognitive disabilities to make daily choices.

For most adults, employment or engagement in meaningful activities constitutes an important aspect of their perceptions of control and self-concept. Holding a job is essential for financial security and autonomy and contributes to the degree to which one perceives oneself and is perceived as being an adult. Employment outcomes for young adults with disabilities are not as positive as most would desire. Chadsey-Rusch, Rusch and O'Reilly (1991) reviewed the research on employment, residential and social outcomes of youth transitioning from school to adulthood. Most studies found that special education students had employment outcomes much worse than their non-disabled peers, with under 40% of students employed full time and

most of them underemployed. Wagner, et al., (1991) reported that only 20% of youth with mental retardation and 37% with learning disabilities were employed full time.

Employment status is not an unambiguous indicator of self-determination. One might be unemployed though self-determined or, more likely, employed but not experience significant control or choice in one's life. Wagner and colleagues' data included sheltered environments as an employment option, yet there is evidence that sheltered settings limit control and individuals in such settings evidence lower perceptions of quality of life (Inge, Banks, Wehman, Hill & Schafer, 1988; Gersten, Crowell & Bellamy, 1986; Schalock, Keith, Hoffman & Karan, 1989). To the extent that many youth with severe disabilities have few employment options outside of sheltered workshops, one has to consider the impact of this variable on self-determination.

Several investigations have compared individuals in sheltered and competitive work environments. Schalock, et al., (1989) found significantly higher scores on a quality of life index for individuals employed in competitive or supported settings versus sheltered environments. Sinnot-Oswald, Gliner and Spencer (1991) reported that individuals in supported employment evidenced higher scores on a quality of life indicator than peers in sheltered employment. Wehmeyer (1994a) found significant differences between locus of control scores for adults with cognitive disabilities, with individuals who were unemployed or working in a sheltered setting perceiving themselves as having less control than peers in competitive settings.

Wehmeyer (1992b) surveyed adults with cognitive disabilities in self-advocacy groups about employment status, job preference and amount of choice in career decisions. Of 254 respondents, a large percentage (87.5%) were employed. Most of these (95%) indicated that they were satisfied with their jobs. However, only 37% of those employed listed a job equivalent to their current one as their preferred job. Of those indicating job preferences, 73% were able to indicate the abilities necessary for those jobs. Although individuals in this sample were older (mean age = 36) and had been in the work force for several years, when asked about how they located their present job, only 8% responded that they had found it themselves. Essentially, these adults wanted other jobs, knew what was necessary to perform such work, but were waiting on someone else to locate the job.

Other outcome indicators support the assumption that individuals with severe cognitive disabilities experience limited self-determination. Wehmeyer and Metzler (1995) analyzed the data from the National Consumer Survey (NCS), a national survey of Americans with disabilities pertaining to their satisfaction with their lives, for 5,000 people with mental retardation. Only 6.3% indicated they had a

choice in where they currently lived, 9.4% said they had selected their roommates and 11.3% indicated they had selected where they worked or their daytime activities. These figures are low not only when compared with adults without disabilities, but to people with non-cognitive disabilities as well. For example, of 10,000 adults with disabilities other than mental retardation, 15.3% indicated that they chose where they live. For people with mental retardation, the opportunity to exert control over their lives was a function of the relative importance of the activity. Thus, 56.3% of the respondents indicated that they determined what clothes they wore (which still leaves more than 40% who do not even have control over that aspect of daily life!) while only 17.6% indicated they provided unassisted consent for medication. While it may be prudent to request assistance in making decisions such as consent to medication for individuals with cognitive disabilities, 56.7% indicated that they had absolutely no control in the process whatsoever.

Several other outcomes from this survey provide evidence of the need to address self-determination for people with severe cognitive disabilities. Only 5.8% of the respondents indicated that they owned their home and only 4.5% indicated that they were currently or ever had been married (or were living with someone). For the sample with non-cognitive disabilities, 12% were or had been married. Among non-disabled Americans, 58% are married or live with someone and 20% are separated or divorced. Several other studies provide information regarding opportunities for choice. Kishi, Teelucksingh, Zollers, Park-Lee and Meyers (1988) determined that adults with mental retardation had significantly fewer opportunities to make choices regarding daily activities, such as what or where to eat or how to spend their time than did their nondisabled peers.

The environment in which one lives impacts how much choice one has on a day to day basis. Pierce, Luckasson & Smith (1990) found that there were significant differences between settings where a person lived (group home vs. mini-homes) in the amount of time staff members selected activities during unstructured time. People living in group homes spent more time in activities selected by staff than did peers living in smaller, less structured mini-homes. Lord and Pedlar (1991) found that individuals who had moved from an institution to group homes exercised some choice about things such as menu planning and leisure activities, but "more often were at best invited or at worst told to do something. Some staff members saw the residents as having choice in their lives because they could choose ways of filling free time in an evening" (p. 217). Wehmeyer, Kelchner and Richards (1994a) found that relative self-determination varied according to the individual's living arrangement (independent,

semi-independent, congregate setting), with people living in more restrictive environments showing less self-determination.

The degree to which an individual perceives him or herself as having control over outcomes and reinforcers has been correlated with positive life-outcomes, and the lack thereof related to negative outcomes. Control is, by consensus, an integral part of self-determination and as such the amount of control individuals with cognitive disabilities attribute to themselves is another indicator of the degree to which these individuals are self-determined. Dudley-Marling, Snider & Tarver (1982) reviewed the literature on locus of control and learning disabilities and concluded that these students were more externally oriented when compared with non-disabled children. Wehmeyer (1993a) found that students with learning disabilities were more externally oriented than expected based on findings from non-disabled peers and that females with learning disabilities were significantly more externally oriented than males. Similar investigation for students with mental retardation has been limited. However, there has been a tendency to attribute externality to this population as well. In their review, Mercer and Snell (1977) determined that four of five studies surveyed attributed more external scores to students with mental retardation than nondisabled peers. Wehmeyer, (1994b) found that adolescents with mental retardation held less adaptive perceptions of control and efficacy than peers with learning disabilities or no disability. Our own research has also found that adolescents with mental retardation evidenced perceptual and psychological barriers to effective career decision-making that included external locus of control and low efficacy expectations (Wehmeyer, 1993b).

Inclusion, Normalization and Community Integration

The Rehabilitation Act amendments discussed earlier illustrate the changing perceptions of disability, and the role of people with disabilities, in our society. This Act stated that "disability is a natural part of the human experience" [Sec. 2 (a)(3)(A - F)]. This perspective of disability places all human abilities and experiences on a continuum and views disability as a part of, not off of, that continuum. Wehmeyer (in press a) described this as a competency model of disability, as contrasted with historical disease or deficit models. Wehmeyer further emphasized that:

> "Within such a conceptualization, disability is seen not as aberrant, outside the norm, or pathological, but as a part of the human experience. People with disabilities are not viewed as sick, diseased, or broken, but valued for their

> uniqueness. While deficit and disease models of disability led to the labeling of people with disabilities in dehumanizing terms like 'cripple', 'quad', 'trainable', or 'retardate', conceptualizing disability within the continuum of human abilities and experiences allows us to apply new labels to people with disabilities: neighbor, colleague, home owner, card collector, football fan, parent, dancer, dog owner, spouse, leader, role model, friend. Not all people with disabilities will actually own a home. Not all people without disabilities own homes. Some people with disabilities will not be good leaders. Some people without disabilities are poor leaders. The central principle of the competency model is that people with disabilities are people first, and have the right to be valued and experience dignity and respect independent of any qualifier or label others might place on them" (Wehmeyer, in press a).

The outcome of such a changing perspective is also reflected in the Rehabilitation Act amendments: "[the presence of a disability] in no way diminishes the rights of individuals to live independently, enjoy self-determination, make choices, contribute to society, pursue meaningful careers and enjoy full inclusion and integration in the economic, political, social, cultural and educational mainstream of American society" [Sec. 2 (a)(3)(A - F)]. Like the intuitive link between quality of life and self-determination, it seems self-evident that until people with disabilities are enabled to be self-determined, they will remain dependent upon systems and other people and, despite the best intentions of these entities, continue to fall short of the goal expressed in the Rehabilitation Act of "full inclusion and integration in the economic, political, social, cultural and educational mainstream of American society" [Sec. 2 (a)(3)(A - F)].

Ray Gagne, a leader in the self-advocacy movement in the United States, related this more eloquently. He wrote about his experiences as a person with a significant disability (Gagne, 1994). He titled the section describing the years he lived at an institution as "*A Life of No Power: Eighteen Years In An Institution*" (Gagne, 1994, p. 328). He titled the subsequent section, which described his movement back into the community "*Twenty Years in the Real World: A Struggle for Power*" (Gagne, 1994, p 328). It is telling that Gagne viewed his efforts to be self-sufficient and self-supporting as a struggle not for independence, integration, inclusion, productivity or any other descriptor familiar to professionals, but as a struggle for power. For Gagne, the term

struggle is not simply hyperbole. When he moved from the state school to an apartment that he shared with two other men with disabilities, he still worked in the sheltered workshop at the institution and, according to his words, lacked many of the basic daily living skills he needed to become independent.

Gagne's efforts to obtain power and control over his life extended over many years, even though he lived in increasingly more independent settings. He had to acquire the skills he needed to be self-sufficient and perhaps more importantly he needed to believe that he could be in control of his life. What propelled him in that direction were his commitment to become self-determined, the occasional support of a professional, friend, family member or employer who listened to him and enabled him to achieve what he wanted, and opportunities to be involved in advocating on his own behalf. With the latter came increased skills in self-advocacy, communication and consumer advocacy.

Gagne (1994) described the incremental steps to empowerment in his autobiographical chapter. He stated "I learned about Section 504 of the Rehabilitation Act and helped found an advocacy group named the Massachusetts Coalition of Citizens with Disabilities. I learned the skills of leadership, advocacy, consumer organization and assertiveness by watching people, participating in meetings and asking questions. My ability to communicate my ideas to facilitate work toward changing the status quo developed over time" (Gagne, 1994, p. 333). Later he wrote: "After four years I moved twice more. I continued to learn new skills and became more involved in self-advocacy and consumer advocacy" (Gagne, 1994, p. 333). Regarding a new job he had obtained at a chapter of The Arc, he said: "Unlike the staff at the institution, the human services professionals I met at this job treated me with respect. They gave me a chance to contribute my input and feedback and believed in many of my ideas. My colleagues also adapted the working environment to help me communicate with them" (Gagne, 1994, p. 333).

The movement to support and promote self-determination is about treating people with dignity and respect. It is about enabling people with disabilities to achieve independence, integration and inclusion to the greatest extent possible by providing them the opportunities to learn the skills they need and the chance to put those skills into action. It is about empowerment, choice and control. One critical aspect of empowerment is the equitable distribution of valued, and often scarce, resources, like jobs, financial security and health care. People with disabilities continue to experience social isolation, segregation, un- and under-employment, and discrimination. It is critical to provide greater

opportunities for inclusion and choice, employment, home ownership and social integration. A key factor to achieving this is achieving the outcome that adults with disabilities are self-determined. Gagne (1994) makes the same point when he summarized his life experiences:

> "I wrote this story to let people know what it was like growing up in an institution from the 1950's through the 1970's. **The total lack of power in making decisions about my life made me angry, and I was treated as an outcast. The staff's abuse, neglect, and insensitivity kept me from being educated and learning the other basic skills that many** children learn from caring adults. When I got into the real world, I wasn't sure what my role was. Nobody ever talked to me or taught me how to be successful. I learned to survive mostly on my own and with the help of a few good people.
>
> I feel that what happened to me should never happen again" (p. 334).

Self-Determination and Youth with Mental Retardation

Many people presume that the presence of a significant cognitive or intellectual impairment precludes, *a priori*, an individual from becoming competent. The terms "self-determined" and "severe disability" are usually viewed as mutually exclusive. The presence of a severe cognitive disability is more likely to evoke assumptions of incompetent decision-making, protectionism, legal guardianship, and vulnerability than competency, effective decision-making, goal setting, and independence. The educational, psychological and rehabilitation literature has virtually ignored self-determination as a factor in school and adult success for individuals with disabilities. Even when this topic has been addressed for people with disabilities, there has been limited discussion about its applicability to people with severe disabilities, and discussion has focused almost exclusively on the rights and capabilities of individuals with severe cognitive impairments to make choices and express preferences. While choice-making is one critical component, self-determination goes beyond simply expressing preferences or making choices. Our experience with people with mental retardation and work in the area of self-determination has convinced us that students with cognitive disabilities can become self-determined, and that educators must focus increased energy

and resources on intervention to bring this outcome within the grasp of more people with cognitive disabilities.

Cognitive impairments that impede an individual's rate of learning, ability to generalize that learning, memory, and language development will impact his or her relative self-determination, but do not, *a priori*, preclude the acquisition and development of component elements leading one to be self-determined. People with severe cognitive disabilities will experience limits in the number and complexity of skills they acquire that are important to become fully self-determined. Self-regulation skills, interpersonal cognitive problem-solving, and other such skills require the use of metacognitive strategies. In a society where interpersonal interactions are increasingly complex, limited social problem-solving skills, coupled oftentimes with limited communicative abilities, will pose very real hurdles to decision-making. However, through behavioral and adaptive technologies many of the barriers imposed by cognitive impairments can be removed or mitigated. In some extreme situations, an individual's cognitive and intellectual impairment may be so significant as to preclude the development of the prerequisites we have proposed, but these circumstances seem to us to be rare enough as to be the great exception and not the rule, even among people with severe cognitive disabilities.

Given adequate supports, opportunities to experience control by having one's preferences honored, chances to learn to make choices, reasonable accommodations and the opportunity to learn skills related to self-determination, there is no reason someone with a severe cognitive disability cannot become not only self-determined, but fully self-determined. Despite the significant barriers to expressing self-determination placed in the way of most adults with cognitive disabilities today, there are concrete examples of people who have achieved self-determination.

Fredericks (1988) related the efforts of his son, Tim, to attain the rank of Eagle scout in Troop 161, in Philomath, Oregon. Tim, who has Down syndrome, was included in the activities of the regular scout troop instead of participating in a "special scouting" program. In order to achieve the rank of Eagle, scouts must conduct a project that provides service to the community. Tim's desire was to communicate to other students what the experience of having a significant cognitive disability meant to him. He sought and gained approval to conduct an Eagle project giving speeches at school campuses in the local district. Because Tim has difficulty with writing and reading, he and his family have developed a method of accommodating for these difficulties while ensuring that Tim's message is his own. Tim dictates what he wants to say to a

family member who prints his words. After this, Tim copies the dictated words in his own script. Tim's father says "Tim's dictation over the years has become quite fluent, and he does not tolerate any editing of his ideas. He occasionally tolerates a suggested word or phrase change" (p. 8).

After this process had resulted in a formal presentation, Tim implemented his project. His original intent was to speak to a few schools, but in the end he presented his speech at twenty-seven schools to an total audience of more than 2,500 people. It is worth repeating Tim's speech without paraphrasing:

> "My name is Tim Fredericks. I am handicapped because I have Down syndrome. I was born with Down syndrome. Down syndrome people have an extra chromosome. Nobody knows why we have this extra chromosome. All of you have forty-six chromosomes. I have forty-seven. Would any of you like my extra chromosome? I would be glad to give it to you if I could.
>
> I would like to tell you what it is like to be retarded. I am doing this so that you might be able to understand people like me. School is a good place to learn, but I don't really like to go to school. I am a slow learner. I have a hard time spelling. Some of your teachers tell me that you have a hard time spelling, and you don't have my problem. I have trouble reading. Everyone tells me that I read about the fifth grade level. I hate to write letters and to write in my diary because it is hard for me to write. After I graduate from school, I hope to live in an apartment with a good friend. I also hope to have two or three part-time jobs. I have two now that I get paid for. I work at Ark Animal Hospital every morning for two hours. I have to be there at 7:15. I work at Vandehey's Cabinet Shop three afternoons a week. I have been working now for more than a year at both jobs.
>
> I do chores at home. I have to take care of the animals, twelve chickens, three cats, a dog, three goldfish and a horse. That's a lot of mouths to feed.
>
> I also help my Dad cut wood. I take care of my own room, and I help my Mom vacuum. She says I do a better job than she does. And she is right!
>
> I love music, but I like hard rock best, but my Mom doesn't.
>
> I have a hard time explaining how I feel, but I feel the same way you do.

The hardest thing for me is when people make fun of me or ignore me. For instance, I went to a dance a few weeks ago, and no girl would dance with me. Can you imagine how you would feel if that happened to you? *Well, I feel the same way.*

Kids on the bus used to make fun of me. That used to make me mad.

I have a girlfriend, but she goes to a different school than I do. I don't get to see her too often. She is handicapped too. I have other handicapped friends, but my best friends are Chris and Mark Weaver. They have been my friends for five years. I think they really like me, and I like them.

I feel good when people talk to me or are friendly to me. That's one of the things I like about Boy Scouts. The boys accept me as I am. They know I am handicapped, but it doesn't make any difference. I am a scout just like them. It takes me longer, and I have to work a little harder to get my merit badges, but I get them done.

That is one of the reasons I am here. I am trying to be an Eagle Scout. I only have three more merit badges to go. My Eagle Scout project was to tell you about myself. I hope I have done that. I want to thank the principal, the staff, and the students for letting me come to talk to you.

If anyone would like to ask any questions, I'll try to answer them, but if I can't my Dad is here, and he can help me" (Fredericks, 1988, pp. 8 - 9).

There seems no question that Tim's actions here are self-determined. He is acting autonomously, is self-regulated, and acts based on an understanding of himself and a belief that he can make an impact. The content of his speech suggests that Tim is self-determined in many other areas of his life.

This is not to suggest that most individuals with severe cognitive and intellectual disabilities will be able to take <u>full</u> control of decisions that impact their lives. It seems evident that many people with severe intellectual impairments will need considerable support in financial and medical decision-making, social interactions, and many other domains. However, as was discussed when defining self-determination, causal agency is not synonymous with absolute control over decisions. Human beings are not completely autonomous or independent but interdependent; all of us are dependent upon numerous others in our decisions. We often choose to relinquish control to others more capable of performing certain functions in our lives...from surgeons to tax

accountants. Our decisions are often influenced as much by our circumstances as by some overall standard.

For example, people who have significant physical disabilities may rely on a personal care attendant to perform specific actions that they cannot, themselves, accomplish because of the limits placed on them by their disabling condition. However, as long as the person with the disability is the causal agent in this process, in that the personal care attendant is acting based on the preferences and instructions of the person with the disability, there is no reason to suggest that he or she is not self-determined simply because he or she does not actually perform the action. There is no reason that the same is not true for people with severe cognitive disabilities. In Tim's circumstance above, he was provided the support he needed to overcome the barriers to acting in a self-determined manner by his family, in this case simply by a process of dictation and transcription.

Such accommodations may be quite extensive for some individuals with severe disabilities. In 1992, The Arc awarded its national Bill Sackter Award to William Crane, who lives in Minneapolis, Minnesota. The Sackter award recognizes someone with mental retardation who has become an achieving, integrated member of society after having left an institutional setting. Bill Crane lived at the Faribault State Hospital in Minnesota for 20 years. Bill experienced significant challenges in his efforts to improve his life. He was born with cerebral palsy, was labeled as having severe mental retardation, and was deaf. He lacked a systematic means of communication. He exhibited behaviors that were deemed as too disruptive for the community. Bill was even denied services in a sheltered workshop because of the severity of his disability and his behaviors. His psychological report described him as "functioning in the severe to moderate range, having no survival skills and needing constant supervision." In a very real sense, Bill was powerless to control his life because the system that was designed to serve his needs instead controlled his life.

The accommodation to overcome these barriers came in the form of legislation and advocacy. Christine Boswell, who at the time was Executive Director of the local chapter of The Arc became Bill's advocate. Together, Bill and Christine forged a working relationship, then a friendship. Christine took the time to listen to Bill, to decipher what he was trying to communicate and finally to begin to advocate on his behalf. He was afforded the opportunity to move into the community. He learned some basic sign language. He worked with his advocate to get access to employment, first sheltered, then supported. Bill's contribution to

this process was simple but essential. He simply never gave up. He never gave up hope. He never gave up expressing his preferences. He never gave up telling anyone who would listen what he wanted.

When awarded the Sackter Award, the nominating form chronicled the achievements of a man who lives a self-determined life. Bill works 30 hours per week as a clerk in a Minneapolis non-profit agency with the support he needs. He has received commendations from his employer as a valued employee. He lives independently in a supported living home in a suburban neighborhood. He has two roommates whom he selected. He interviewed the support service personnel who come into their home on a daily basis. He enjoys mountain camping, whitewater river rafting, hockey, and visiting friends and relatives. He was reunited with his mother after 15 years and travels to visit her when he can make room in his schedule. Bill cooks with a microwave, shops and is responsible for his own self-care needs.

The final sentence in the application sums Bill's current existence up quite neatly. It states that "IQ labels have been disregarded as irrelevant to Bill's potential and capabilities." Bill's accommodations went beyond simply a personal care attendant or a technological device. Without system changes, in the form of legislation and changing perspectives on how to provide services, and strong advocacy, it is probable that Bill would have been unable to overcome the barriers in his way. But, as all of those who spoke during the award ceremony that recognized his achievement, there was never any doubt as to who the causal agent in this process was...it was Bill.

For many people with significant cognitive disabilities, the catalyst for change and the primary impetus to provide accommodations are family members. Because the individual providing assistance is a family member instead of a personal care attendant does not mean that the person is not self-determined. However, it is sometimes difficult for a family member to change his or her relationship with the individual to become, in essence, a neutral accommodation and some relationships remain overly controlling, parent or sibling dominated and, in essence, dependency creating. The same is often true for teacher-student relationships. Most people with severe cognitive disabilities have had very limited opportunities to experience choice and control in their lives and have essentially grown up in dependency creating environments, from the home to the school to the sheltered workshop. Not only do many people with severe cognitive disabilities lack the skills and attitudes to become self-determined, they lack the opportunities to do so and, consequently, the

understanding or motivation to overcome these barriers and assume greater control.

These barriers are too often, for all practical purposes, insurmountable for the person him or herself. People with severe cognitive disabilities are perceived as incapable, incompetent and in need of protection. Attempts by the individual to break free from these bindings frequently result in the establishment of higher, more difficult to scale barriers...greater segregation, more isolation. Individual preferences are treated as problem behaviors and subject to modification. The reality is that people with severe cognitive disabilities are often reliant upon others like family members, friends and professionals both to provide the support they need to reach independence and become as autonomous as possible and to initiate the actions that will allow them to accomplish these ends. Too frequently this reliance becomes yet another dependency-creating relationship that is dominated as much by the needs of the supporter as the needs of the individual. Teacher needs for structure and control in the classroom take precedence over student needs to take control over learning and educational decision-making. Staff needs based on time constraints overwhelm individual needs to maximally participate in daily activities. Family needs for protection and safety eventually win out over independence and autonomy brought about through risk-taking and exploration.

In reality, the greatest threats to self-determination for people with severe cognitive disabilities lie not internal to the individual, but external. There are real limitations to learning and performance that impact the individual's ability to be autonomous and self-regulating. Through behavioral interventions and adaptive technologies, however, people with significant cognitive impairments can learn skills that enable them to become at least partially autonomous and self-regulating. This, combined with families, friends and professionals who act for the individual, based upon his or her preferences, wants, needs, abilities, interests and choices, should enable people with severe disabilities to be self-determined. It is, however, these environmental supports that need modification most desperately.

Chapter 3

Scale Construction and Development

The definitional framework upon which this Scale is based proposes that self-determination is an educational or adult outcome. When students leave school they should have acquired the attitudes and abilities that enable them to become self-determined young adults. Self-determination is an outcome that emerges based on learning across the lifespan, and chronological age and level of self-determination should be positively correlated. However, although children and adolescents can be self-determined, full self-determination is primarily an adult outcome. The reality is that most children and adolescents are, by their status as minors, not fully capable of nor allowed to be self-determined. It is only when one moves into adulthood, and assumes the responsibilities of adulthood, that one is fully able to express self-determination.

Given this framework, the construction and development of ***The Arc's Self-Determination Scale*** followed a dual process. First, the characteristics of adults with cognitive disabilities who were identified as self-determined and those who were not self-determined were examined and those characteristics that supported self-determined behavior were isolated. Second, items were identified for inclusion in the Scale which mirrored the characteristics indicated through the research process. Scale domains and subdomains were identified in a top-down manner; examining the self-determination of adults with cognitive disabilities and applying this knowledge to the development of an assessment of this construct for adolescents with cognitive disabilities. The following description provides a summary of this research. A detailed description is available from Wehmeyer, Kelchner and Richards (1994).

Identification of Scale Domains and Subdomains

Procedures

To identify domains and subdomains for the Scale, a series of structured interviews with (primarily) adults with mental retardation were conducted across the nation. The interview

questions examined the contribution of essential characteristics of self-determined behavior to the achievement of behavioral outcomes closely associated with self-determination.

The research sample included 408 adolescents and adults with mental retardation who lived in 10 states. The mean age for the sample was 36.34 years (*SD* = 11.28, Range = 17 to 72). Fifty-five percent of participants were female (*n* = 226, Mean age = 35.69, *SD* = 11.36, Range = 17 to 72), 45% were male (*n* = 182, Mean age = 37.16, *SD* = 11.17, Range = 19 to 68). Eighty-one percent of the sample identified themselves as Caucasian, 9% as African-American, 5% as Native American, 2.5% as Hispanic, and 2% as Asian-American. Study participants were recruited through self-advocacy groups (consumer organized and run advocacy organizations) across the nation, identified to ensure geographic representation and ethnic and socioeconomic diversity.

Informed consent was obtained from all participants and/or their legal guardians. Project personnel, trained to administer each assessment described below, traveled to each site and conducted data collection activities with two exceptions, where group advisors, with direction from project staff, collected data. Data collection typically occurred in the context of a regularly scheduled self-advocacy meeting. All measures used were designed for individual or small group administration. At most sites assessments were group administered, but in some cases data were collected through one-to-one interviews. Participants were assisted, when necessary, by project staff and group advisors / volunteers and questions were read orally to all participants. Individuals with limited mobility or speech impairments were given necessary adaptations to participate.

To provide information about level of disability, respondents evaluated themselves on seven questions assessing the amount of assistance or help they required. Each question addressed functioning in one of the seven areas of "major life activities" used to determine the presence of a developmental disability (e.g., self-care; learning; mobility; self-direction; receptive and expressive language; capacity for independent living; and economic self-sufficiency). Participants responded in one of three ways (None, A little, A lot) to each of the questions. Each "None" answer was awarded 0 points, each "A little" answer 1 point and each "A lot" answer 2 points. The sample averaged 5.3 points (*SD* = 3.26, Range 0 - 14), suggesting that the sample was composed primarily of individuals with milder degrees of mental retardation. This assumption is bolstered by the fact that the process required respondents to complete a series of written assessments that, even when read orally, pose considerable difficulties for individuals

with more significant levels of disability and, practically, precluded their involvement in research activities.

Measuring Self-Determined Behavior

Because there were no measures of self-determination available to evaluate the definitional framework, it was determined that the most appropriate indicator of this outcome would be the performance of behaviors generally agreed upon as reflecting self-determination. These behaviors were identified through a review of the extant literature, research from and discussions with personnel from federally-funded model demonstration and research projects to promote self-determination, and input from people with disabilities.

The use of multiple measures to evaluate the definitional framework required a sample size large enough to draw conclusions from research activities. It was not possible to conduct behavioral observations for each individual. Instead, project personnel used an extant survey, the *National Consumer Survey*, to determine behavioral self-determination. The *National Consumer Survey* (NCS) was constructed as part of a large evaluation of the independence, integration and productivity of people with developmental disabilities and was used to interview more that 13,000 people with disabilities around the country. The NCS consists of 79 questions in six sections: a) Eligibility and screening; b) Demographics; c) Services satisfaction; d) Independence; e) Integration; and f) Productivity. More detail concerning the development process and the survey is available in the *Final Report of the 1990 National Consumer Survey of People with Developmental Disabilities and their Families* (Jaskulski, Metzler, & Zierman, 1990).

The instrument has subsequently been used to examine quality of life issues for people with disabilities and to examine the self-determination of people with mental retardation. Wehmeyer and Metzler (1995) selected 7 demographic variables and 27 questions from the NCS to examine the self-determination of more than 5,000 survey respondents who had mental retardation. Kozleski and Sands (1992) used a modified version of the NCS to compare quality of life for individuals with and without disabilities.

Participants responded to a series of questions from the NCS reflecting relative self-determination in six principal domains: (a) Home and Family Living; (b) Employment; (c) Recreation and Leisure; (d) Transportation; (e) Money Management; and, (f) Personal / Leadership. Questions assessing choice and control in each of these domains were selected. This involved nine questions

directly from the NCS, all using a common question/response system identical to that used during the initial NCS survey. Participants answered each question with one of 10 response options. Responses to these questions were assigned values, ranging from 0 points for the most self-determined response (Yes, unassisted) to 4 points for the least (No, agency/staff member). Thus, participants scored from 0 to 36 points on these nine questions and lower scores reflected higher self-determination.

The final domain area, Personal/Leadership, consisted of six questions referring to actions and activities about leadership and personal advocacy. These questions were generated by project staff because no comparable questions existed on the NCS. Participants responded in a "yes/no" format to each question, with a "yes" answer reflecting a self-determined action and awarded 0 points. A "no" answer reflected a lack of self-determined behavior and was scored "4" points. The Personal/Leadership domain, then, accounted for 0 to 24 points. Thus, on the survey as a whole, scores could range from 0 to 60, with "60" reflecting the least amount of self-determination and "0" indicating the most.

Wehmeyer, Kelchner and Richards (in press) determined that this survey had adequate structural and concurrent validity and internal stability (Chronbach alpha = .82). Total scores for the survey correlated strongly with estimations of level of caregiving needed and independence, with respondents scoring more positively on the survey requiring less support in caregiving and indicating greater independence. A Lilliefors test of normality did not reach significance, indicating that the scores approximated a normal distribution. In addition, for a subset of the sample, survey results correlated significantly with group advisors' ratings of self-determination.

Measuring Essential Characteristics of Self-Determination

A series of self-report measures were used to examine each essential characteristic of self-determination. Autonomy was measured with a self-report version of the *Autonomous Functioning Checklist* or AFC (Sigafoos, Feinstein, Damond & Reiss, 1988) and the *Life Choices Survey* (Kishi, Teelucksingh, Zollers, Park-Lee, & Meyer, 1988). Self-regulation was evaluated using the *Means-Ends Problem Solving* technique (MEPS) (Platt & Spivack, 1989) and the *Children's Assertiveness Inventory* (Ollendick, 1984). Perceptions of psychological empowerment were measured with the *Adult version of the Nowicki-Strickland Internal-External Scale* (Nowicki & Duke, 1974), and the Ollendick scales of social self-efficacy and outcome expectancy

(Ollendick, Oswald & Crowe, 1986). Self-realization was measured using the short version of the *Personal Orientation Inventory* (POI) (Jones & Crandall, 1986).

The first measure of autonomy used was the Autonomous Functioning Checklist. The AFC is a parent-completed checklist measuring the behavioral autonomy of adolescents. The scale has 78 items and is subdivided into four conceptually distinct subscales: Self and Family Care, Management, Recreational Activity, and Social and Vocational Activity. Questions in the first three domains describe activities to which parents respond by selecting one of five alternatives [(a) does not do; (b) does only rarely; (c) does about half the time there is an opportunity; (d) does most of the time there is an opportunity; and (e) does every time there is an opportunity]. The fourth domain poses questions with a yes/no answer. Likert-scale responses are scored from zero (does not do) to four (does every time), while dichotomous yes-no responses are scored with zero or one. High total (out of 252 possible) and subscale scores indicate that an individual exhibits behaviors associated with autonomy.

Sigafoos, et al., (1992) found that the AFC subscales had high levels of internal consistency (coefficient alpha from .76 to .86). There were consistent and significant correlations between each subscale and adolescent leadership experience (.21 to .36) and three of four subscales and number of extracurricular activities (.34 to .45), providing further evidence for construct validity. The AFC was adapted in the present study as a self-report measure for use by adults with disabilities by presenting instructions and items in first-person tense instead of second person. The five-point Likert format used in the original scale was maintained, but responses were made singular and first person. Wehmeyer and Kelchner (1994) found that the factor structure of the self-report version replicated that of the original version and that this version had adequate criterion-related validity as demonstrated by significant differences in scores dependent upon individuals' status on two other behavioral indicators of autonomy (living independently and self-care).

A second measure of autonomy was the *Life Choices Survey* (Kishi, et al., 1988). The LCS has ten items measuring major life decisions and daily choices. Respondents answer on a five-point scale indicating how often they have the opportunity to make decisions and choices. Questions explore opportunities and choices people have at meals and snacks, what they watch on television, and who lives with them. The survey was designed to be completed in an interview format and yields a score reflecting total amount of choice (minimum 10, maximum 40). Kishi, et al.,

(1988) found that the survey predicted differences in life choices between adults with and without mental retardation. Stancliffe (1995) evaluated the degree to which acquiescence response bias posed a threat to the validity of the *Life Choices Survey* and found a negligible level of acquiescence (1.4% of all responses from adults with mental retardation were associated with acquiescence).

The *Means-Ends Problem Solving* (MEPS) technique (Platt & Spivack, 1989) was used to measure self-regulation. The MEPS has been used in numerous studies to examine interpersonal cognitive problem-solving of children, adolescents and adults. The MEPS procedure uses a series of story items portraying situations where a need is introduced at the beginning of a story and satisfied at the end. The respondent completes the story by filling in events that might have occurred to fulfill the need (Platt & Spivack, 1989). Responses are written and can be as long or short as necessary. Because people with mental retardation require additional time to read (or have read to them) the stories and respond, and because several of the stories in the MEPS require knowledge not typically held by people with mental retardation, only 4 of the 10 scenarios were selected for administration.

Stories are scored according to the number of means, no means, irrelevant means, or no responses provided by the respondent. A mean was defined as "any relevant unit of information designed to reach the goal or to overcome an obstacle, a purposeful action taken by someone with the intent to reach a goal" (Platt & Spivack, 1989). A score of "no means" was given when the subject failed to provide a response necessary to reach the goal. A score of "irrelevant means" was given for a response that was not effective within the context of the story. "No response" was recorded if the participant failed to respond to the story. The MEPS procedure manual (Platt & Spivack, 1989) provides a list of relevant means from which to choose, but scorers are also given the latitude to include other means as relevant if they make that determination. There are no limits on the number of means a respondent can generate. For the four scenarios used in the present study, the average total number of relevant means identified for the scale was 7.89 for college students and 5.58 for non-college adults.

The number of relevant means were tallied for each story then added to calculate the total relevant means score for each participant (the MEPS procedures allow respondents to list as many means per story as they can generate). The manual documents the instrument's construct, discriminant, predictive and concurrent validity. For the present study, a second rater scored the MEPS for 100 of the participants. Interrater reliability for each question (calculated using agreements/agreements +

disagreements) were .74, .80, .81 and .86. (Wehmeyer & Kelchner, 1994).

As a second indicator of self-regulation, participants completed the *Children's Assertiveness Inventory* (Ollendick, 1984). This is a 14-item assessment examining the degree to which someone initiates interactions, gives and receives compliments, stands up for his or her own rights and refuses unreasonable requests. Respondents answer items with a yes or no response. Higher scores reflect more assertiveness. The scale has adequate test-retest reliability (.76) and correlates with other conceptually related measures, including measures of self-concept, locus of control, and role-play assertion (Ollendick, 1984). The scale was identified for use because of its simple reading level. The questions are all pertinent to adults as well as children.

Psychological empowerment was measured using a locus of control scale and two related measures of social self-efficacy and outcome expectancy. Rotter (1966) defined locus of control as "the degree to which a person perceives contingency relationships between his or her actions and outcomes." People who see themselves as in control of outcomes in their lives have an internal locus of control. Those who perceive outcomes as controlled by others, fate or chance hold an external locus of control. The *Adult version of the Nowicki-Strickland Internal-External Scale* is a widely used measure of general locus of control. The ANS-IE consists of 40 items answered with a "yes" or "no" and yields a final score based on the number of items answered in an external direction. Higher scores reflect more external orientations. The scale has reported split-half reliability figures ranging from .74 to .86, with Test-Retest Reliability figures ranging from .63 to .76. Although normed with adults without disabilities, the instrument has been used to determine locus of control orientation for individuals with cognitive impairments in previous research efforts (see Wehmeyer, 1994a). Wehmeyer (1993; 1994b) determined that the factor structure of the ANS-IE, when used with individuals with mental retardation, was comparable to that for youth and adults without disabilities and that the scale was reliable for use with individuals with mental retardation, despite some problems with acquiescence.

Self-efficacy and outcome expectancy were measured by two related, 10-item scales, the *Self-Efficacy for Social Interactions Scale* and the *Outcome Expectancy Scale* (Ollendick, Oswald & Crowe, 1986). Self-efficacy is the belief that one has the capacity to perform behaviors needed to achieve a specified outcome. Outcome expectancy refers to the belief that if specific behaviors are performed, anticipated outcomes will result. On the self-

efficacy measure respondents indicate how sure they are that they could perform a set of socially-related behaviors. Scores range from 10 to 50 with higher scores progressively more adaptive. Questions on the outcome expectancy measure replicate those on the self-efficacy measure, with 10 questions answered on a five-point scale. This scale focuses instead on the expected outcome if the student actually performed the described behavior. Both scales have adequate reliability (test-retest over a 3-month period of .75 and .78, Ollendick & Schmidt, 1987). Ollendick, Oswald and Francis (1989) used these scales with students who were "at risk" for school failure due to aggression and withdrawal.

The Short version of the *Personal Orientation Inventory* (Jones and Crandall, 1986) was used to measure self-realization. The POI is a 15-item measure of an individual's understanding of his or her emotions, abilities and limitations, and the degree to which he or she is influenced by others or by his or her own motivations and principles. Items are answered with a yes/no response and higher scores reflect higher self-realization. Jones and Crandall (1986) found that the index had adequate test-retest reliability (.69) and internal consistency (alpha = .65) and total scores were correlated with conceptually related measures. Tucker and Dyson (1991) found that the factor structure of the assessment for minority students replicated that of the original.

Analyses

A multiple discriminant function analysis was conducted to identify essential characteristics that are important for distinguishing between people with mental retardation who were self-determined and those who were not. From the original sample of 408 participants, 312 were included in this analysis. The remainder of the sample was excluded due to missing data on one of the eight predictor variables (essential characteristics). Missing data was most frequently the result of a failure to answer all questions on the specified assessment. This sample consisted of 137 males (mean age = 37.55) and 165 females (mean age = 36.68). The sample was then divided into two dichotomous groups based on a frequency distribution of NCS total scores. Scores below the midpoint (30), reflecting higher levels of self-determination, were assigned to the high self-determination group (group high), scores above the midpoint were assigned to the low self-determination group (group low). There were 166 people in the high self-determination group (mean age = 35.69, mean NCS score = 19.11) and 146 in the low self-determination group (mean age = 37.82, mean NCS score = 39.43). It was hypothesized that

there would be significant differences between groups on the measures of essential characteristics of self-determined behavior, with participants in the high self-determination group scoring in a more adaptive direction on each instrument.

Results

Univariate statistics generated by the discriminant function analysis procedure indicated differences between predictor variables based on group membership. Nine of the 11 predictor variables reached significance ($p < .05$) when examining differences between groups and in each of those cases the direction of the difference was more favorable for individuals in the high self-determination group. In discriminant analysis the emphasis is on analyzing the variables together instead of just individually. On the basis of all 11 predictor variables, a single discriminant function was calculated with *Chi-square* = 119.29 ($p = .00001$) and omnibus *Wilks' Lambda* = .74159. Examination of the canonical discriminant functions evaluated at group means (or group centroids) showed that this discriminant function distinguished group 1 (high self-determination, function = .59030) from group 2 (low self-determination, function = -.58740), accounting for all between-group variability. Of the total number, 71.5% of the cases were correctly classified using this function. A loading matrix of correlations between predictor variables and the discriminant function and a review of the means of the predictor variables by group indicated that measures of autonomy, particularly the management, social and vocational activities, and self and family care subscales, were the primary variables distinguishing between groups. Accordingly, measures of self-awareness (*Personal Orientation Inventory*), self-regulation (assertiveness and problem-solving), and psychological empowerment (locus of control), were significantly different between groups, and followed in importance.

On all scales the mean scores for group high were more positive than those for group low, as predicted. For the group as a whole, the NCS survey scores were significantly correlated, in the predicted direction, with all measures except the self-efficacy and outcome expectancy measures. The strongest relationship ($r = -.48$) was with the *Autonomous Functioning Checklist*. The other meaningful correlations with the NCS were the *Life Choices Survey* ($r = -.23$), and the MEPS ($r = -.22$). The ANS-IE correlated with the NCS at $r = .17$ and the POI at $r = -.16$. While efficacy and outcome expectancy scores were neither predictive of differences between groups nor significantly correlated with the NCS scores, they were strongly correlated with several of the other measures.

For example, the *Self-Efficacy Scale* was significantly correlated with the *Children's Assertiveness Scale* ($r = .21, p = .0001$) and the POI ($r = .29, p = .0001$). The *Outcome Expectancy Scale* was related to the *Life Choices Survey* ($r = .26, p = .0001$) and, to a lesser degree, the assertiveness measure ($r = .19, p = .0001$) and the POI ($r = .17, p = .001$).

Item Identification and Question Generation

The above cited research activities validated the utility of the definitional framework of self-determination for individuals with cognitive disabilities. Project personnel decided, based on these data and other research conducted at The Arc, that ***The Arc's Self-Determination Scale*** should provide a measure of overall self-determination as well as domain scores reflecting each of the four essential characteristics described in the **Theoretical Issues** section; *Autonomy*, *Self-Regulation*, *Psychological Empowerment* and *Self-Realization*. Items were generated in each of the four domain areas using two methods: (1) adapting questions from extant measures of the essential characteristics; and, (2) author generated items. When feasible, the first strategy was used since this provides additional reliability and validity indicators for the questions. The following section discusses the relevant essential elements and item generation in each domain.

Autonomy

Questions 1 - 32 on ***The Arc's Self-Determination Scale*** reflect the autonomy of students with disabilities. These items were adapted directly from the *Autonomous Functioning Checklist* (Sigafoos, Feinstein, Damond & Reiss, 1988) with permission from the authors of this scale. As described previously, the original version of the AFC was a parent-completed checklist designed to measure the behavioral autonomy of adolescents. The scale has 78 items and is subdivided into four conceptually distinct subscales: Self and Family Care, Management, Recreational Activity, and Social and Vocational Activity. The Self and Family Care subscale includes items that measure basic daily living activities, specifically routine personal care, and family-oriented activities. Each item describes an activity (e.g., Prepares food that does not require cooking; Shops for and purchases family groceries) to which parents respond by selecting one of five alternatives presented in a Likert-type format. These alternatives are: (a) Does not do, (b) Does only rarely, (c) Does about half the

time there is an opportunity, (d) Does most of the time there is an opportunity, and (e) Does every time there is an opportunity.

The Management subscale (questions 23 - 42) includes items measuring the degree to which adolescents independently handle their interactions with the environment. This includes self-management activities, the use of available resources, and assumption of personal responsibility for commitments and obligations. Like the Self and Family Care subscale, parents respond to items describing Management activities (e.g., Uses the telephone and telephone directories, Plans activity for his/her free time) using the five-point Likert-scale ranging from does not to does every time. The Recreational Activity subscale, which also uses the Likert response system, contains 16 items that indicate the youth's recreational and leisure time activities. The final subscale, Social and Vocational Activity, contains 20 items that measure the adolescent's social involvement and vocational goals, plans, and activities. This scale has questions phrased to elicit a yes-no response (e.g., Has casual friendships with teenagers of the opposite sex; Works or has worked to earn money by using a special skill).

The AFC is scored by assigning values to each response. Likert responses are scored from zero to four while dichotomous yes-no responses are scored with zero or one. High total and subscale scores indicate that an individual exhibits behaviors associated with autonomy. There are 252 points possible. Sigafoos, et al., (1992) found that the subscales had high levels of internal consistency (coefficient alpha from .76 to .86) and provided normative data for a sample of 349 families. Interrater reliability was examined by having both parents in a subset of families (n = 52) complete the survey. Resulting correlation coefficients ranged from a low of .46 for the Self and Family Care subscale to .62 for the Recreation subscale. Lower range correlations were attributed to the five-point Likert-scale and variability in parental perceptions of their adolescent's functioning. There were significant correlations for three of four subscales with chronological age (.36 to .44) suggesting a developmental progression and providing preliminary evidence of concurrent validity for the scale. In addition, there were consistent and significant correlations between each subscale and adolescent leadership experience (.21 to .36) and three of four subscales and number of extracurricular activities (.34 to .45), providing further evidence for construct validity.

The AFC was adapted as a self-report measure for adults with disabilities for use in research activities by rewording instructions and items in first-person tense instead of second person. For example, one item on the AFC originally read 'My

teenager keeps (his/her) own personal items and belongings in order (for example, makes bed, puts away own clothing and belongings). The self-report form of the question read 'I keep my own personal items and belongings in order (for example, make my bed, put away my own clothing and belongings).' Virtually all questions were modifiable in this straightforward manner. The five-point Likert format used in the original scale was maintained, but the responses were made singular and in first person (e.g, from 'Does not do' to I do not do'). Although the adaptations were made so that adults with disabilities could report their level of autonomy, the questions were still relevant to adolescents, since the original AFC had targeted this audience. Because The Arc's research activities indicated that the AFC was a strong contributor to overall self-determination, the authors contacted the developers of the AFC to obtain permission to use modified versions of the questions to measure autonomy. Permission was granted and a factor analysis of the scores from the sample described previously was conducted to identify questions which most strongly clustered together to reflect autonomy for this population.

As described in the **Theoretical Issues** chapter, autonomy has been conceptualized in The Arc's framework of self-determination as reflecting two interrelated outcomes; acting independently and acting on the basis of preferences, beliefs, values and abilities (referred to as the *Choice* subdomain). To capture these two subdomains, we conducted a factor analysis of the item-by-item scores on the AFC collected during the research phase of scale development. To provide further information to users, we included as part of the interpretation of this factor analysis two distinct areas within the *Independence* subdomain and four areas within the *Choice* subdomain. For the *Independence* subdomain, this involved interpreting factors related to Personal Care and Family Oriented Functions as one distinct area and Interaction with the Environment as the second. The *Choice* subdomain was compartmentalized into actions in four areas; (1) Recreational and Leisure Time; (2) Community Involvement and Interaction; (3) Post-School Directions; and (4) Personal Expression. The factor analysis identified eight items clustered together which were interpreted as reflecting Personal Care and Family Oriented Functions and five questions reflecting Interaction with the Environment. Five questions were interpreted as reflecting actions in the area of Recreational and Leisure Time, four questions clustered together reflecting Community Involvement and Interactions, seven questions indicated Post-School Directions, and two questions represented Personal Expressions.

To ensure there were adequate an adequate number of items to represent subdomain areas, yet limit the total number of questions to a manageable few, it was determined that each area should have between 4 and 6 questions, with each subdomain represented by at least 10 questions. Questions were eliminated from each area that had more than 6 items, based on individual weights and redundancy. For the Personal Expression subdomain, the authors generated items that used the AFC answering system. All question wording was modified to be at a fourth-grade level or less and the answering format was adapted to make it more accessible for individuals with cognitive disabilities. The questions measuring autonomy are as follows:

Subdomain: Independence

Routine Personal Care and Family Oriented Functions

1. I make my own meals or snacks.
2. I care for my own clothes.
3. I do chores in my home.
4. I keep my own personal items together.
5. I do simple first aid or medical care for myself.
6. I keep good personal care and grooming.

Interaction with the Environment

7. I make friends with other kids my age.
8. I use the post office.
9. I keep my appointments and meetings.
10. I deal with salespeople at stores and restaurants.

Subdomain: Acting on the Basis of Preferences, Beliefs, Interests and Abilities

Recreational and Leisure Time

11. I do free time activities based on my interests.
12. I plan weekend activities that I like to do.
13. I am involved in school-related activities.
14. My friends and I choose activities that we want to do.
15. I write letters, notes or talk on the phone to friends and family.
16. I listen to music that I like.

Community Involvement and Interaction

17. I volunteer in things that I am interested in.
18. I go to restaurants that I like.
19. I go to movies, concerts, and dances.
20. I go shopping or spend time at shopping centers or shopping malls.
21. I take part in youth groups (like 4-H, scouting, church groups)

Post-School Directions

22. I do school and free time activities based on my career interests.
23. I work on school work that will improve my career chances.

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24. I make long-range career plans.
25. I work or have worked to earn money.
26. I am in or have been in career or job classes or training.
27. I have looked into job interests by visiting work sites or talking to people in that job.

Personal Expressions

28. I choose my clothes and the personal items I use every day.
29. I choose my own hair style.
30. I choose gifts to give to family and friends.
31. I decorate my own room.
32. I choose how to spend my personal money.

Self-Regulation

The number of components of self-regulation that can be measured using a self-report indicator like ***The Arc's Self-Determination Scale*** are limited. It was determined that the important, measurable components of self-regulation were the subdomain areas of Interpersonal Cognitive Problem-Solving and Goal-Setting and Task Performance.

As described previously, The Arc's research activities included the use of the *Means End Problem-Solving* (MEPS) process to measure the degree to which individuals with disabilities who were and were not self-determined possessed skills related to interpersonal cognitive problem-solving. The MEPS uses a story-based format where respondents are provided the beginning and ending of a story. The beginning poses a problem, the ending reports the outcome. The respondent is instructed to tell what happened in the middle of the story that connects the two. In essence, respondents are asked to generate the means by which the outcome was achieved, given the problem. The MEPS process provided a useful model for measuring this outcome, and ***The Arc's Self-Determination Scale*** uses a similar method to measure interpersonal cognitive problem-solving. However, each of the six stories included on ***The Arc's Self-Determination Scale*** were generated by the authors of the Scale and the instructions to respondents and scoring are different than that employed by the MEPS. The MEPS allows respondents to generate as many means as they possibly can and these are scored as being relevant or irrelevant. To provide some standardization in the process, we have asked students to generate only the BEST answer for the middle of the story. This answer is then evaluated along a scale of 0 to 2, with 0 being no means or completely irrelevant means and 2 being a relevant means (see **Scoring and Interpretation** chapter). The stories from this section are:

33. **Beginning** --You are sitting in a planning meeting with your parents and teachers. You want to take a class where you can learn to work as a cashier in a store. Your parents want you to take the Family and Child Care class. You can only take one of the classes.

Ending -- The story ends with you taking a vocational class where you will learn to be a cashier.

34. **Beginning -- You hear a friend talking about a new job opening at the local book store. You love books and want a job. You decide you would like to work at the bookstore.**

Ending -- The story ends with you working at the bookstore.

35. **Beginning** -- Your friends are acting like they are mad at you. You are upset about this.

Ending -- The story ends with you and your friends getting along just fine.

36. **Beginning** -- You go to your English class one morning and discover your English book is not in your backpack. You are upset because you need that book to do your homework.

Ending -- The story ends with you using your English book for homework.

37. **Beginning** -- You are in a club at school. The club advisor announces that the club members will need to elect new officers at the next meeting. You want to be the president of the club.

Ending -- The story ends with you being elected as the club president.

38. **Beginning** -- You are at a new school and you don't know anyone. You want to have friends.

Ending -- The story ends with you having many friends at the new school.

The second subdomain in the *Self-Regulation* domain is Goal-Setting and Task Performance. ***The Arc's Self-Determination Scale*** measures this by asking students to identify a goal in each of three major transition areas (living, working and transportation),

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and list the steps they will need to take to meet each goal. Students are asked to identify if they have planned for each of these outcomes, and if so, if they have set goals and know what it will take to achieve these goals. Scores are based on the number of goals and tasks students generate.

Psychological Empowerment

As described in the **Theoretical Issues** chapter, psychological empowerment refers to the related constructs of locus of control, self-efficacy and outcome expectancy. These three constructs provide an overall indicator of perceived control. Items within this domain were generated by the authors using a forced-choice format. We selected this format to avoid redundancy between this section and the agree/disagree format in the *Self-Realization* domain questions and to provide some control for acquiescent responses.

Self-Realization

The items in this section were identified to provide information on several components of self-realization, including self-awareness, self-acceptance, self-confidence, self-esteem and self-actualization. The items were originally drawn from the *Short Index of Self-Actualization* (Jones & Crandall, 1986) based on a factor analysis of scores on this scale from the research sample. This factor analysis yielded a factor containing 11 items that represented the multiple aspects of self-realization. All items from this factor were selected and the remaining four items in this domain were generated by the authors.

Pilot Testing of The Arc's Self-Determination Scale

Once items were identified for inclusion or generated by the authors, a pilot version of the Scale was developed along with guidelines for implementation. This version of the Scale was distributed to teachers working with students with cognitive disabilities in three states, Texas, Alabama and Virginia. There were a total of 261 secondary-age students with cognitive disabilities involved in the pilot-test. Data collected from these sites were subjected to factor analysis. (Details about the factor analysis procedures are provided in section describing the field-testing of ***The Arc's Self-Determination Scale***.) Separate factor analyses were conducted for each domain area, with the exception

of the second domain, *Self-Regulation*, which does not lend itself to factor analysis. In the *Autonomy* domain the rotated factor matrix indicated six factors. Factor I consisted of 12 items, mainly consisting of items from the *Acting on the Basis of Preferences, Beliefs, Values and Abilities* (e.g., *Choice*) subdomain in the areas of Personal Expression and Recreational and Leisure Time. Factor II consisted of five items primarily from the *Choice* subdomain, Post-School Directions area. Factor III involved four items from the *Independence* domain, primarily from the Interaction with Environment area. Factors IV, V and VI each included three items reflecting Personal Care and Family Oriented Functions (IV), Post-School Directions (V), and Community Involvement and Interaction (VI). Thus, each of the areas postulated under the two subdomains were represented by at least one unique factor.

Factor analysis for the *Psychological Empowerment* domain yielded three factors. Factor I had four items, three of which represented self-efficacy. All of these items had the theme of focusing on one's ability, which would be expected for a factor related to self-efficacy (the belief in one's ability to accomplish a task). Factor II also included four items, two of which applied to outcome expectations, and one each to locus of control and self-efficacy. This factor had as a common theme choice and the opportunity to experience choice, once again consistent with a factor estimating outcome expectations. Factor III consisted of four items reflecting locus of control. Of the total number of 16 items, only four were not interpretable within these three factors. These clustered together in two groups of two, one representing a general belief about outcomes related to interpersonal relationships and the other relating to the role of luck in one's life. Again, these factors adequately represented the constructs items were selected to represent.

The factor analysis for domain 4, *Self-Realization*, yielded three factors incorporating 11 of the 15 items. Factor I included five items, four of which were interpretable as representing self-esteem and self-confidence. Factors II and III included three items each, with both factors interpretable as reflecting self-knowledge and self-awareness.

The results of these factor analyses indicated that the instrument had adequate construct validity and factors within each domain roughly reflected the constructs they were identified to measure. A correlation analysis at this phase supported these conclusions. Relationships between total and subscale scores from ***The Arc's Self-Determination Scale*** and conceptually related measures were examined. The relationship between the *Nowicki-Strickland Internal-External Scale*, a locus of control measure described

previously, was most highly correlated with the psychological empowerment subscale scores ($r = .41$, $p = .0001$) while scores from the *Intellectual Achievement Responsibility Scale* (IARQ), a measure of student attribution of responsibility for academic success and failure, correlated highly with both the self-regulation score ($r = .46$) and the *Psychological Empowerment* score ($r = .48$). Based on these analyses and feedback from pilot-test sites, the Scale was subjected to a more comprehensive, wider field-test.

Field-Testing of The Arc's Self-Determination Scale

The field-test of the Scale involved 500 students from five States; Texas, Virginia, Alabama, Connecticut and Colorado. The demographic characteristics of this group are presented in **Chapter 5**. The majority of the students in the sample were adolescents with mild mental retardation and learning disabilities. A revised draft of ***The Arc's Self-Determination Scale*** was distributed to teachers from each of these school districts. These protocols were completed, returned to The Arc and scored by project personnel. Data were analyzed to determine the validity and reliability of the instrument. Only the factor analyses are presented in this section, with other findings reported in the **Norms** and **Reliability and Validity** chapters. Data were factored using a principal components analysis (Norusis, 1976). Factors producing eigenvalues greater than 1.0 were selected for further analysis and remaining factors were subjected to varimax rotation with the resulting factor pattern analyzed for content. Criterion for item inclusion was a factor loading of at least .30. A minimum of three items was required to establish a coherent theme for a factor.

Factor analysis for the *Autonomy* domain yielded seven factors with eigenvalues greater than 1.0, accounting for 52% of the variance. The rotated factor structure yielded five factors, accounting for 30 of the 32 items. **Table 3.1** lists each factor with its pertinent items. Factor I consisted of 12 items. Nine of these twelve were in the *Choice* domain. Four of the first five items, sorted by weights, were from the Personal Expression area of the *Choice* subdomain. Three of the remaining items were from the *Choice* subdomain, Recreation and Leisure area. This factor was best interpreted as representing student's actions based on preferences, beliefs, values and abilities in the area of personal expression, with some interaction effects from acting on these principles in one's recreational and leisure time.

Table 3.1: Factors by Question # for Factor Analysis within Autonomy Domain

Factor I	Factor II	Factor III	Factor IV	Factor V
29	13	19	27	10
32	22	20	26	5
28	11	15	25	8
16	23	21	24	1
31	7			
30	17			
14				
4				
6				
18				
12				
9				

Factor II consisted of six items, the majority of which were in the *Choice* subdomain (5/6). The coherent theme for this factor related more to question content than subdomain areas, although the theme of choice and acting on the basis of preferences, beliefs, values, and abilities dominated. Most items reflected student functioning in school, either in the Recreation and Leisure Time area or the Post-School Directions area. Factor III consisted of four items, three of which were from the Community Interaction and Involvement area of the *Choice* subdomain. Factor IV consisted of four items from the Post-School Directions area. Factor V consisted of four items from the *Independence* subdomain.

Factor analysis in the *Psychological Empowerment* domain yielded five items with eigenvalues greater than 1.0. The rotated factor structure yielded three factors accounting for 12 of 16 items. These factors matched those from the analysis in the pilot study very closely. **Table 3.2** provides item by factor structure for this analysis. Factor I consisted of five items, three of which reflected self-efficacy indicators. The overall content for all five items reflected one's ability to perform behaviors, again consistent with a factor interpreted as representing self-efficacy. Factor II contained three items, two of which were related to outcome expectations and all of which reflected the belief that students had choices that they could exercise or not. Factor III contained four items, all reflecting locus of control.

Table 3.2: Factors by Question for Psychological Empowerment Domain

Factor I	Factor II	Factor III
54	56	42
50	57	43
48	53	44
52		45
46		

The initial solution for the *Self-Realization* domain yielded five items with eigenvalues in excess of 1.0, accounting for 49.3% of the variance. The rotated structure yielded two factors, depicted in **Table 3.3**. The first factor included six items that related primarily to self-esteem and self-confidence, the second factor consisted of three factors related to self-awareness.

Table 3.3: Factors Question Number for Self-Realization Domain

Factor I	Factor II
68	63
72	61
64	59
71	
70	
65	

A final factor analysis was conducted on items from all three domains. The initial solution yielded 18 factors with eigenvalues in excess of 1.0 accounting for 56.4% of the variance. The rotated solution yielded five factors, three which were interpreted as representing a unique domain area, and two which combined items from more than one domain area. Factor I had 32 items, 28 of which were from the *Autonomy* domain. Factor II had 10 items, 4 from the *Psychological Empowerment* domain, and 3 each from the *Self-Realization* and *Autonomy* domains. Factor III had five items, 4 from the *Psychological Empowerment* domain. Factor IV had six items, 3 from the *Self-Realization* domain, 2 from the *Psychological Empowerment* domain, and one from the *Autonomy* domain. Factor V consisted of 7 items, 5 from the *Self-Realization* domain.

These analyses support the construct validity of ***The Arc's Self-Determination Scale*** as a valid measure of self-determination as a multifaceted construct. Although factors do not unequivocally replicate the specific subdomains and areas that form the structure of the assessment, they do closely approximate the structure. There is enough theoretical overlap between domain areas to account for the differences between factor solutions and

hypothesized areas. The factor analysis of the three domains together illustrates this fact. Three factors were clearly interpretable within the hypothesized domains, while two factors combined items from multiple domains.

Based on these analyses it was concluded that ***The Arc's Self-Determination Scale*** has adequate construct validity. Prior to the layout of the final protocol, some alterations to the wording in several questions were made based on feedback from educators and students involved in the field-test. These changes did not alter the content or meaning of questions or responses.

Chapter 4

Administration

The administration and scoring of ***The Arc's Self-Determination Scale*** requires minimal special preparation: familiarity with the questions on the Scale, its appropriate use, and knowledge about the students with whom the Scale is being used. It is important that the teacher or individual working with the student be familiar with the items, the directions that precede each section and the scoring procedures. Users are strongly encouraged to read the **Introduction and Overview** chapter to identify procedures that enhance the reliability and validity of self-report measures, like ***The Arc's Self-Determination Scale***. The Scale was designed, field-tested, and validated for use with students with cognitive, developmental, and other disabilities. More specifically, the Scale was designed for use by students with mild levels of cognitive disability, mental retardation and global learning disabilities. Field-testing indicated that the Scale was applicable to students with emotional and physical disabilities as well. A portion of the field-test was conducted with students without disabilities and the Scale probably has utility beyond the populations identified. The Scale was designed and field-tested for individual or group administration. Several factors will influence how the Scale is completed, but two important factors are the student's reading and writing skills. The Scale can be administered orally, and in group situations it is often preferable to do so. Reading each item aloud may ensure that students understand what is being requested. If a student has difficulty writing responses, particularly those in Section 2, requiring written responses, teachers or others can transcribe the student's response.

Tips for Administration of the Scale

To ensure adequate reliability and validity, it is important that the following procedures for administering the Scale be adhered to as closely as possible. The following guidelines are recommended:

1. Individuals administering ***The Arc's Self-Determination Scale*** should become thoroughly familiar with each domain and administration instructions for each. An assessment schedule should be arranged that minimizes disruption to students' school routines.

2. It is permissible to involve as many as 15 students at a time in the assessment process if the students' reading abilities warrant this and there are enough adults to provide the needed support. Even in group settings, students can proceed at a self-paced speed and the teacher can provide individual support. However, for some students with mental retardation it may not be appropriate to complete the assessment in a group setting. In such cases, teachers should work one-on-one with students to complete the items.
3. Individual assessment should be completed within one session. If it is not feasible to complete the Scale in one session, a second session can be held to complete the remaining questions. Teachers should set aside between thirty minutes and one hour for students to complete the items on the Scale.
4. For students with more significant disabilities, it may be necessary to read questions and provide accommodations for answering the questions. Teachers should arrange for the additional time necessary in this process to ensure that the student finishes the Scale in one session.
5. The standardized method of examination included BOTH oral and written presentation of all questions. This was done to account for the considerable differences in reading comprehension and vocabulary among students receiving special education services. If students with more advanced reading abilities are frustrated by oral presentation, the examiner might tactfully explain the reasons for using this method of presentation or encourage these students to complete the Scale by themselves after the directions are read in full to them.
6. During oral administration students may need to be reminded of the instructions (on each protocol) for the specific domain being assessed at that time.
7. Students should be seated so that they can do their own work. It is important for the examiner to be sure students do not look at and duplicate other students' responses. Otherwise, invalid response data will be collected.
8. Each student should have a Scale protocol and two sharpened pencils with erasers. All responses should be recorded directly on the Scale protocol. Desks should be clear of other objects and the environment should be free from distraction.
9. Before students begin, they should be informed why they are completing the Scale, what will be done with the

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results, and the importance of answering honestly. It is essential to convey this information without making students feel anxious and without overstating the Scale's importance. Students should be assured that they are completing the Scale to help them and their teachers better meet their instructional needs. Teachers should emphasize a team approach to the process, restating the student's opportunity to take more control over his or her educational planning process.

10. Directions should be read aloud. Each Scale item, its answer choices, and any other accompanying information should be read once unless the examiner has observed some students have not comprehended an item and chooses to repeat that item. If you elect to allow students to take the Scale by themselves, be certain they understand the instructions for each domain section.
11. It is acceptable for the teacher or administrator to restate the directions, expanding or defining them if necessary, to define words within the questions that students find problematic or to explain what the various answering options mean. It is important that the teacher not be directive when describing options for the student to answer, but simply provide information to the student.
12. If students do not understand vocabulary used in the test items, the examiner should give a brief definition of the word(s) in question. In so doing, it is imperative that the examiner not place undue emphasis on any outcome or answer or influence the students answer in any way.
13. In sections 3 and 4, students are asked to choose one of two categories (yes/no or agree/don't agree) that describe how they feel about themselves. Students may feel that both or neither answer describes them. Teachers should assure the student that this is not uncommon, but they should choose the one that BEST indicates what they think or believe.
14. It is important that the student respond in a manner that accurately and honestly reflects his or her beliefs and not in a manner which is perceived as socially appropriate. Stress that there are no right answers, that students should respond with what they believe to be true and that all responses are strictly confidential.

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Chapter 5

Scoring and Interpretation

Scoring The Arc's Self-Determination Scale

Scoring ***The Arc's Self-Determination Scale*** involves the determination of raw scores for all domain and subdomain areas, calculation of a total score and interpretation of these raw scores based on conversion tables. The back page of each protocol contains a scoring sheet onto which raw and converted scores can be copied. Converted percentile scores can also be graphed to track individual progress and for comparison with data from the sample norms.

Autonomy

The questions in the *Autonomy* domain use a common response method. Students respond to each statement with a response from one of four choices:

I do not even if I have the chance.
I do sometimes when I have the chance.
I do most of the time I have the chance.
I do every time I have the chance.

Students should respond to only one of these choices on each question. The student is assigned a score based on the response category, as follows:

I do not even if I have the chance.....	0 points
I do sometimes when I have the chance.....	1 point
I do most of the time I have the chance.....	2 points
I do every time I have the chance.....	3 points

Spaces are provided on the protocol into which a scorer can record the subtotal scores. Once all subtotal scores are determined, a total Autonomy score can be calculated by adding each of these subtotals. There are 96 points possible in the *Autonomy* section.

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Low scores represent low levels of autonomy, higher scores indicate higher levels of autonomy.

Self-Regulation

The *Self-Regulation* section consists of two subdomains, with questions which require students to write (or dictate) answers. Section I involves story-based items where the student identifies what he or she considers the best solution to a problem. Student responses are scored on a scale of 0 to 2 points, depending on the effectiveness of the solution to resolve the problem. A "0" score means that the student either gave no answer or the solution the student gave would fail to achieve the indicated ending to the story. A "1" score indicates that the answer the student provided was okay, but might have limited utility to achieve the ending identified. A "2" score indicated that the answer provided was an acceptable, adequate way to achieve the indicated ending. Due to the nature of this process, scorers must use some judgment on the appropriateness of students' answers, including how they relate to geographic, cultural, and socioeconomic differences among students. A score of "2" does not represent an "optimal" answer, but simply an answer that would achieve the ending.

To facilitate the scoring process for this section, each question from the Interpersonal Cognitive Problem-Solving subdomain (questions 33 - 38) will be addressed individually, with suggestions as to what to look for in scoring items and examples of answers from the normative sample. These examples are not intended as guidelines, simply examples of the types of answers in each category.

Question 33:

Beginning --You are sitting in a planning meeting with your parents and teachers. You want to take a class where you can learn to work as a cashier in a store. Your parents want you to take the Family and Child Care class. You can only take one of the classes.

Ending -- The story ends with you taking a vocational class where you will learn to be a cashier.

Components to look for when scoring:

0 points - Student does not address problem, offers no means to resolve differences or simply restates given information without resolving situation.

1 point - Response indicates an action on the part of a student or another, but does not suggest how to

resolve differences, such as simply stating that "I will take the class I want".

2 points - Answer addresses conflict resolution, possibly through compromise and negotiation, identifies actions on both sides.

Examples of responses:

0 points:

"I would do what I need to learn more."

"You want to take a class where you can learn to work as cashier."

"Get mad."

"I like my teacher and book and math."

"I want to take family and child care class."

"I want to take art."

"I will like to work as a cashier at a store because my grades are good."

"My parents want me to take the child care class. I want to be a cashier in a store."

"We want to take a class test."

"Cause you want the best out of life so you can get a good job and make something of yourself."

1 point:

"Well, you tell your parents that you want to take that class really bad."

"Compromise with them saying there will always be next year."

"My Mom and Dad are cool, I ask for the job and they said OK."

"Make my own choices."

"My parents let me make my own decisions."

"I told my parents I wanted to take the class."

"I do what I want to."

"I don't like children - tell teacher I'd quit school."

"Talk to parents/teacher/parents and teacher."

"I ask the teachers to put me in next year."

2 points:

"I told my parents that I would rather do something I enjoy. And ask them please can I take the cashier class."

"Tell my parents I want to take that class better because I'm interested in it."

"Talk to them. Try to convince them."

"I'd say I need this class. I'd convince them."

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"So I take the class that I want to take first and learn how to cashier and after I am finished with that class I will take the other."

"You express your desire to take the cashier class and explain what you want to your parents, who respect your decision because they feel you are mature enough."

"My teacher and I got together and we talked about what should take and adjusted for me to take the cashier's class."

"I will tell my parents that I want to take the cashier class first cause I always wanted to take cashier class. I might take other classes later."

Question 34:

Beginning -- You hear a friend talking about a new job opening at the local bookstore. You love books and want a job. You decide you would like to work at the bookstore.

Ending -- The story ends with you working at the bookstore.

Components to look for when scoring:

0 points - Student does not offer means to get a job, restates given information.

1 point - Response indicates action only on the part of one party (e.g., student, friend, boss) in pursuing job.

2 points - Answer provides actions to pursue job and action by employer in hiring.

Examples of responses:

0 points:

"I would let my friend try first."

"I will like to work at a bookstore just to have a very nice job."

"In a couple of days you worked at the bookstore."

"I love to read books and write stories. I would like to be an author."

"I went in with him."

"I want an application, I won't fill it out and take it but I won't want them to call me."

"I got the job."

"I like to work in the bookstore. My friend opening the bookstore."

"I will take them to a library."

"I want to stack books and work as a cashier."

"I learn how to give correct change and give back and take marketing class."

1 point:

"I will get information about the job and work very hard on trying to get it."

"I'd go see how much they would pay. Wages, and see what the hours are and how many days a week I would work."

"You go in and ask for the job."

"I go to the bookstore and fill out an application."

"Put in an application."

"I get info from my friend and apply for the job."

"I decided to look for the job and get the job."

"Check if you know how to do books and stuff."

"You would go to the bookstore. Then you would ask them for a job to work there."

"Ask friend where it is and apply for the job."

2 points:

"You submitted an application, they accepted you and now you are working and enjoying what you are doing."

"One of my friends, he is working there. I ask him to get me a job there. He asks the boss if one of my friends can work with us. The boss said yes, tell your friend come down tomorrow we will give him the job for a week to see if he can hold it. My friend calls and said yes, yes you got the job."

"I went with my friend to the bookstore for an interview. A week later I got a call to go to the new job opening."

"You go to the store, fill out application, talk to manager, go for the interview, make a good impression by being groomed and the manager hires you."

"I had to sign some paper and take some kind of test and then I asked the boss. That is how I got the job."

"I called and went in for an interview for the job and the Librarian hires me for the job and then I start working."

"I go and fill out application to work and talk to boss. Boss hires me!"

"Learn how to do the job. Tell manager you want the job. He says OK."

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"I went to the bookstore and got an application and fill it out and talk to the bookstore owner and I got hired."
"I put in application and manager hires me."

Question 35:

Beginning -- Your friends are acting like they are mad at you. You are upset about this.

Ending -- The story ends with you and your friends getting along just fine.

Components to look for when scoring:

0 points - Restating given information, no effort to address conflict.

1 point - Limited attempt to initiate contact with friends or counselor.

2 points - Initiation of discussion/dialogue with some aspect of working out a resolution and getting along afterward.

Examples of responses:

0 points:

"My friends are mad at me because I ate all the caramel corn pop up and I said it was good popcorn."
"I would not talk to them until they talk to me."
"Do nothing."
"Maybe your friends were just in a bad mood."
"Well, I would like to take them to the movies."
"Because they are mad at me."
"I will not call them my friends anymore."
"Because I don't know what I did wrong."
"Friends like mine don't get mad."
"I'd be happy."

1 point:

"We shook hands and made up."
"I ask them for what reason or why they aren't talking to me."
"I would talk to them about it."
"I say sorry."
"Try to talk to them."
"I just ignore it and it blows over."
"Go to them and ask why they got mad at you in the first place."
"Talk to my teacher."
"Well, I ignored them and act like I don't know anything and wait for one of my friends to come up to me."

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2 points:

"Why are you acting like you are mad at me? We're not mad at you. We thought you were mad at us. No, I'm not mad so let's settle it, ok?"

"I'd talk to them and see if there was a problem and then talk to them about it and see if we resolve whatever it is that happened."

"I'd ask what was going on. After I find out I would try and work with them on the problem."

"I would talk to them and work it out together."

"Me and my friends went to the counselor."

"You and your friends sit down and talk it out."

"I will say it is OK and they will say I am your friend."

"I just want to talk to them and they realized that and they said sorry."

"You ask your friends what they are upset about, you listen to them and respect what they are saying. Then you explain your side of the story reasonably."

Question 36:

Beginning -- You go to your English class one morning and discover your English book is not in your backpack. You are upset because you need that book to do your homework.

Ending -- The story ends with you using your English book for homework.

Components to look for when scoring.

0 points - Restating given information, no effort to address finding or borrowing a book.

1 point - Stating possible locations, with no follow-up, stating possible consequences.

2 points - Finding, borrowing or other means of obtaining a book to use in completing assignment.

Examples of responses:

0 points:

"You were upset because you need that book to do your homework."

"I got F."

"Get mad."

"I don't like to do homework."

"The teacher will get mad at me and talk to my parents I think."

"You should had did your homework at home and not at school."

"I got one."

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"Listen carefully in class, take notes."
"I don't have my English book one morning. I was upset. I look in my backpack."
"I tell one of them where I'm going."

1 point:

"I will talk to my teacher."
"I get a pass to look for it."
"I go to lost and found to see if it's there."
"Go back to the last place you were then you might find it."
"Go look for it."
"Tell the teacher and ask what I can do."
"I will try to look much harder for my English book and think harder where I left it."
"Go to the locker to look. Go to lost and found to look for it."
"I go to my locker to see if it's there but it's not so I go to my boyfriends locker because I'm so upset and I look in his locker."
"I seem to misplace books, I can't find it. I think it's in my locker so I go look."

2 points:

"I would ask the teacher if she/he could give me another book to borrow so I could do my homework."
"I will tell my teacher and ask what I could do. Hopefully, my teacher would let me borrow another book for homework."
"I find it in a hidden part of my bag where I forgot it. I had put it there so I wouldn't forget it."
"You ask your teacher to go to your locker. In your locker you find your book and take it back to class."
"So you look on with someone else and look at home later."
"You go to lost and found and see if someone turned it in. If not go to teacher and ask cost of book. Reimburse her and get another book."
"I went to lost and found and it was not there so I went to my locker and I find it."
"Somebody took the book. Somebody else let me borrow their books."
"You probably left it at home - you can't find it. Tell your teacher and she loans you one of hers."
"I ask to use my sister's. She says OK."

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Question 37:

Beginning -- You are in a club at school. The club advisor announces that the club members will need to elect new officers at the next meeting. You want to be the president of the club.

Ending -- The story ends with you being elected as the club president.

Components to look for when scoring:

0 points - Restating given information, no actions to indicate running for office, nomination or election by others.

1 point - Response indicates action by student indicating a desire for office or action by others to choose him or her for office.

2 points - Answer indicates desire for office and action by other in electing or choosing the student.

Examples of responses:

0 points:

"I'll be rich, famous."

"Talk to the President of the United States."

"I am ashamed to be in a club because I don't like to speak in front of a crowd."

"Most of the club are my friends."

"Work to meet your goals and you will have a high standard in life."

"To show everyone that you can be a good president."

"I was hoping I would be the next president."

"What I would do is to get what I get. I will not go up to him or her."

"I got everybody in if I could."

"I don't know that."

1 point:

"I will run for president."

"Tell them you want to be president."

"They vote 9 - 5 and I won."

"Bribe them."

"I won the nomination and I became the president."

"I will vote on who I want to be the next president."

"Work really hard for it."

"I told them I'd be a good president."

"Run for the president."

"I will go up to him or her and say I want to be president of the club right now."

"I will sign up and start by having a campaign party."

2 points:

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"You announce your intention of running for president to everyone. You put up posters and campaign by asking members to vote for you and by saying what you plan to do as president. They vote and you win."

"I entered my name in the box and two boys and girl entered so the kids voted for me."

"Persuade the members of the club that you're the best man for the job and that you have the leadership qualities."

"You think you should run for president of the club. They vote for you."

"You ask your friends to nominate you and ask them to support you and they do."

"I will do a lot of speeches and paint posters. I beat everyone in the club."

"You ask people to vote for you and they do."

"Work really hard for it. They the kids at school will have to vote who they want."

"Work to meet your goal and vote. If they vote, you win."

Question 38:

Beginning -- You are at a new school and you don't know anyone. You want to have friends.

Ending -- The story ends with you having many friends at the new school.

Components to look for when scoring:

0 points - Restating given information, stating why they want friends with no means to achieve this, stating activities with no interactions indicated.

1 point - Response indicates action by the student to initiate interactions or responses of others to the student.

2 points - Response indicates action by the student to initiate interactions and responses of others to the student.

Examples of responses:

0 points:

"It is fun to have good friends not the ones who steal or break into the house."

"I was at a new school and didn't know anyone."

"I had a thousand friends."

"I don't know anyone. I want to have friends."

"You have to make new friends at the new school."

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"Take one day at a time."
"Don't act stuck on yourself."
"I looked around."
"I don't know about that."

1 point:

"I will ask if anyone will show me around the new school."
"Talk to people at lunch, recess, and during class."
"I will go around and tell everyone my name."
"Go to my classes and be myself."
"I go up and talk to them and I go flirt with them, I'm a flirter."
"You could go to the teachers and ask them to be your friend."
"Counselor introduces you to others."
"They ask if you are new and what your name is."
"I went to talk to people and invite them over to my house."
"Just be yourself at all times and make friends."

2 points:

"Go to the office first day, get a counselor, counselor introduces you to student who introduces you to others."
"I went up to them and introduced myself to them and then they became my friends."
"I go talk to some girls and they introduce me to their friends and on and on until I had many friends."
"You join clubs, get involved in sports, and other extracurricular activities. You invite people to go to your house or to do something else with you and they do."
"Try to find someone with the same interest as you and do it together."
"I looked around for people I fit in with and they talked to me."
"I talked to them at recess and they asked me to sit with them at lunch."
"I asked him where my class was and he showed me around."
"So at lunch you sit next to a girl with no other students around and you become friends. Later you meet her usual lunch buddies and you live happily ever after."
"You join the team and you are the best player and every girl wants to go out with you."

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These examples are not meant to be standards for scoring, simply exemplary responses to use when reaching decisions. Scorers should take into consideration the individual characteristics of the student and decide if the answer achieves the ending. After each question there is a line to record the score assigned by the evaluator. At the end of the section these subtotals can be summed for a subdomain score. This portion of the *Self-Regulation* domain has 12 points possible, with higher scores representing more effective interpersonal cognitive problem-solving.

Section II of the *Self-Regulation* domain asks students to identify goals in several life areas and identify steps they need to take to achieve these goals. Points are accumulated based on the presence of a goal and the number of steps identified to reach that goal. If a student responds to the initial inquiry about the presence of a goal with the "I have not planned for that yet" response, he or she is awarded 0 points. If the student identifies a goal, but no steps to reach that goal, he or she is awarded 1 point. For a goal with 1 or 2 steps the student receives 2 points and students who identify a goal and 3 or 4 steps receive 3 points. Goals are not judged on the probability that the student can achieve them, but simply on their presence or absence. Steps to achieve the goal are, however, judged based on whether they are viable steps in the process or unrelated to achieving the goal. As in the previous section, the following section lists some components to look for when scoring these items and examples from the norming sample.

Question 39:
Where do you want to live when you graduate?
Components to look for when scoring:
0 points - No plan or goal is unrelated to where student would live after graduation.
1 point - Some living goal with no steps to indicate how to achieve that goal.
2 points - Goal stated, plus one or two steps that would lead to achieving the goal.
3 points - Goal stated, plus three or four steps that would lead to achieving the goal.
Examples of responses:
0 points:
"I have not planned for that yet."

"Not Sure."
"Happily ever after."
1 point:
"In my own house."
"In (name of town or state)."
"With parents/friends/other family."
"House, apartment, on campus, hospital, mansion."
2 (Goal plus 1-2 steps) or 3 (Goal plus 3 - 4 steps) points
"Work" or "Get a job."
"Find an apartment."
"Become a manager."
"Finish school" or "Do homework."
"Get good qualifications."
"Keep out of trouble."
"Get furniture."
"Get a house."
"Help out with chores."
"Pay rent."
"Pack clothes."
"Graduate."
"Buy a car."
"Keep my bills up."
"Meet new friends" or "Get roommate."
"Save money."
"Learn to cook."

Question 40:
Where do you want to work after you graduate?
Components to look for when scoring:
0 points - No plan or goal is unrelated to where student would work after graduation.
1 point - Some work or continuing education goal with no steps to indicate how to achieve that goal.
2 points - Goal stated, plus one or two steps that would lead to achieving the goal.
3 points - Goal stated, plus three or four steps that would lead to achieving the goal.
Examples of responses:
0 points:
"I have not planned for that yet."
"Just live on my check."
"Not sure."
1 point:
"In a store."
"My own place office business."

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"As a (list profession or job title)."
"Record Store" or "Captain D's" or the name of another business.
"On small motors" or "teaching children" or other job description.

2 (Goal plus 1-2 steps) or 3 (Goal plus 3 - 4 steps) points

"Want ads."
"Get job application."
"Finish school."
"Ride the bus."
"Know social security number."
"Trade school in cooking."
"Talk to a manager."
"Learn to read and write."
"Go to classes at college."
"Train."
"Get an office."

Question 41:

What type of transportation do you plan to use after graduation?

Components to look for when scoring:

0 points - No plan or goal is unrelated to what type of transportation student plans to use after graduation.
1 point - Some transportation goal with no steps to indicate how to achieve that goal.
2 points - Goal stated, plus one or two steps that would lead to achieving the goal.
3 points - Goal stated, plus three or four steps that would lead to achieving the goal.

Examples of responses:

0 points:

"I have not planned for that yet."
"Go out of town."

1 point:

"Car/Truck/Motorcycle/Limo or other type of vehicle."
"Use family/friend's/parent's car, etc."
"BMW/Toyota/Ford or make of vehicle."
"Take a bus/subway, etc."
"Ask other people to take me."

2 (Goal plus 1-2 steps) or 3 (Goal plus 3 - 4 steps) points

"Work" or "Get a job."
"Get a driver's license" or "Learn driving book."
"Buy gas/insurance, etc."
"Save money."

"Pay for car/truck, etc."
"Bus pass."
"Learn route."
"Buy car."

As before, these examples are not meant to be standards for scoring, simply examples of responses to use when reaching decisions. At the end of the section is a line for the subdomain score. This portion of the *Self-Regulation* has 9 points possible, with higher scores representing more effective goal-setting and task attainment skills.

Psychological Empowerment

This domain consists of 16 questions asking students to choose which best describes them. Answers that reflect psychological empowerment (e.g., beliefs in ability, perceptions of control, and expectations of success) are scored with a 1. Answers that do not reflect a psychologically empowered belief or attitude are scored with a 0. The total points available are 16 and higher scores indicate that students are more psychologically empowered. The following provides a scoring key for this section:

42. **0 points** I usually do what my friends want.
1 point I tell my friends if they are doing something I don't want to do.

43. **1 point** I tell others when I have new or different ideas or opinions.
0 points I usually agree with other peoples' opinions or ideas.

44. **0 points** I usually agree with people when they tell me I can't do something.
1 point I tell people when I think I can do something that they tell me I can't.

45. **1 point** I tell people when they have hurt my feelings.
0 points I am afraid to tell people when they have hurt my feelings.

46. **1 point** I can make my own decisions.
0 points Other people make decisions for me.

47. **0 points** Trying hard at school doesn't do me much good.
1 point Trying hard at school will help me get a good job.

48. **1 point** I can get what I want by working hard.
0 points I need good luck to get what I want.

49. **0 points** It is no use to keep trying because that won't change things.
1 point I keep trying even after I get something wrong.

50. **1 point** I have the ability to do the job I want.
0 points I cannot do what it takes to do the job I want.

51. **0 points** I don't know how to make friends.
1 point I know how to make friends.

52. **1 point** I am able to work with others.
0 points I cannot work well with others.

53. **0 points** I do not make good choices.
1 point I can make good choices.

54. **1 point** If I have the ability, I will be able to get the job I want.
0 points I probably will not get the job I want even if I have the ability.

55. **0 points** I will have a hard time making new friends.
1 point I will be able to make friends in new situations.

56. **1 point** I will be able to work with others if I need to.
0 points I will not be able to work with others If I need to.

57. **0 points** My choices will not be honored.
1 point I will be able to make choices that are important to me.

Self-Realization

The final section of ***The Arc's Self-Determination Scale*** measures individual self-knowledge and self-awareness. Like the previous section, answers are scored with either 0 or 1 points based on the direction of the answer. That is, answers reflecting a positive self-awareness and self-

knowledge are scored with a 1 and answers that do not are scored with a 0. There are 15 items (questions 58 - 72) and the total possible for this domain is 15. Higher scores reflect greater self-realization. Table 5.1 provides the key to scoring for this section:

Table 5.1: Scoring for Self-Realization section

Question	Agree	Disagree
58. I do not feel ashamed of any of my emotions	1	0
59. I feel free to be angry at people I care for.	1	0
60. I can show my feelings even when people might see me.	1	0
61. I can like people even if I don't agree with them.	1	0
62. I am afraid of doing things wrong.	0	1
63. It is better to be yourself than to be popular.	1	0
64. I am loved because I give love.	1	0
65. I know what I do best.	1	0
66. I don't accept my own limitations.	0	1
67. I feel I cannot do many things.	0	1
68. I like myself.	1	0
69. I am not an important person.	0	1
70. I know how to make up for my limitations.	1	0
71. Other people like me.	1	0
72. I am confident in my abilities.	1	0

Entering Raw Scores on Protocol: Scoring Steps 1 and 2

The scoring sheet (last page of each protocol) includes sections to enter raw and converted scores. Once scoring is completed, scores from each domain and subdomain should be entered into the section labeled **Scoring Step 1**. The domain scores should be summed to determine a total raw score, which should be entered into the appropriate box in **Scoring Step 2**.

93

Converting Raw Scores: Scoring Step 3

Once raw scores are entered onto the protocol, the next step in the scoring process is to convert these raw scores into percentile scores for comparison with the sample norms and to determine the percentage of positive responses. This is accomplished using the tables that appear in the **Conversion Tables** section at the end of the Procedural Guide. Each table provides conversion information for one subdomain/domain area or the total score and provides percentile scores for the sample norms and the positive scores. Identify the raw score appropriate for each domain/subdomain or total and record the appropriate percentage scores on the protocol at **Scoring Step 3**.

Interpreting Scores: Scoring Steps 4 and 5

It is rarely justifiable to interpret findings based on raw scores alone. There are a number of reasons for this, among them the fact that there are usually different "points" possible for any given subscale and comparing between two subscales, one with a total of 12 points and another with a total of 18 points, is like comparing apples and oranges. Additionally, some topics are much more difficult than others and a low raw score might be more the norm than high scores. ***The Arc's Self-Determination Scale*** should be interpreted using the converted percentile scores described above. These include: (1) a percentage score for the sample norms, and (2) individual percentage positive scores.

To ease the interpretation process, **Scoring Step 4** and **Scoring Step 5** provide graphs in which converted scores can be entered. The graphs provide an easy way to view a student's overall progress overall. Once raw scores are converted and **Scoring Step 3** is filled in, the teacher and student should fill in the graphs. For example, if the converted norm sample score for 1A (*Autonomy, Independence:* Self and Family Care) was 70, this point should be identified in **Scoring Step 4** under graph column "One A" and the boxes below the 70% mark filled.

Percentage scores for comparison with the sample norms indicate the percent of scores from the norm sample which were equal to or less than the student's score. Thus, a 70 indicates that 70% of the scores from the sample norms were the same or lower than the student's score. The individual percent positive scores indicate the percentage positive for each domain. The total points available for the *Autonomy* domain is 96. A student who scored a

72 will have a 75% positive score conversion where a score of 96 reflects 100% positive and 0 indicates 0% positive.

How to Use Scores from The Arc's Self-Determination Scale

The **Introduction and Overview** chapter described the appropriate and inappropriate uses of the Scale. Once converted scores are graphed, teachers and students can examine the trends in the data to describe areas of individual strengths and weaknesses, compare scores with previous assessments to determine areas of growth and use the information provided by examining Scale items to generate potential goals and objectives.

It is presumed that the Scale's utility for research will be to measure student's self-determination to examine program or intervention efficacy, to examine environmental and individuals contributors to self-determination, and to evaluate the importance of self-determination on related outcomes and issues. These comparisons will be conducted by using raw scores, although intervention-based research may track percentage positive scores.

Chapter 6

The Arc's Self-Determination Scale Norms

Sample Description

The norms in this guide are based on responses to ***The Arc's Self-Determination Scale*** by 500 students (223 males, 210 females, 67 gender not known) from schools in urban, suburban and rural districts in five States (Texas, Virginia, Alabama, Connecticut, Colorado). All students were identified by their school district as currently receiving special education services and had completed protocols from ***The Arc's Self-Determination Scale.*** However, because of difficulties obtaining adequate consent to release information from schools in Texas and Alabama, information regarding student age, racial status or specific disability category were not available for all students. Demographic data from students for whom this information was available were provided in this section.

The age distribution for the group as a whole is presented in **Table 6.1**. Age distributions by gender are presented in **Tables 6.2** and **6.3**, and descriptive statistics for the group as a whole and by gender are provided in **Table 6.4**.

Table 6.1: Age distribution for group as a whole.

Age	Frequency	Percent	Cumulative Percent
14	2	1.1	1.1
15	23	13	14.3
16	40	23	37.1
17	53	29.7	67.4
18	35	20	87.4
19	8	4.6	92
20	4	2.3	94
21	7	4	98.3
22	3	1.7	100

Table 6.2: Age distribution for males.

Age	Frequency	Percent	Cumulative Percent
14	1	1.2	1.2
15	17	20.2	21.4
16	18	21.4	42.9
17	21	25	67.9
18	19	22.6	90.5
19	4	4.8	95.2
20	1	1.2	96.4
21	2	2.4	98.8
22	1	1.2	100

Table 6.3: Age distribution for females.

Age	Frequency	Percent	Cumulative Percent
14	1	1.1	1.1
15	5	5.6	6.7
16	22	24.4	31.1
17	32	35.6	66.7
18	16	17.8	84.4
19	4	4.4	88.9
20	3	3.3	92.2
21	5	5.6	97.8
22	2	2.2	100

Table 6.4: Age descriptive statistics.

Group	Mean	Standard Deviation	Variance
All	17.08	1.99	2.52
Males	16.86	1.53	2.34
Females	17.31	1.61	2.60

The sample consisted of students with and without disabilities, including mental retardation, learning disabilities, and emotional disorders. **Table 6.5** presents the distribution for the group as a whole by disability category and **Tables 6.6** and **6.7** provide this information by gender.

Table 6.5: Disability status for group as a whole.

Type of Disability	Frequency	Percent	Cumulative Percent
No Disability	50	13.7	13.7
Learning Disability	160	44	57.7
Emotional Disorder	15	4.1	61.8
Mental Retardation	128	35.2	97
Orthopedic Impairment	1	.3	97.3
Other Health Impairment	6	1.6	99
Autism	2	.5	99.5
Speech	2	.5	100

Table 6.6: Disability status for males

Type of Disability	Frequency	Percent	Cumulative Percent
No Disability	17	10.4	10.4
Learning Disability	76	46.3	56.7
Emotional Disorder	9	5.5	62.2
Mental Retardation	59	36	98.2
Orthopedic Impairment	0	0	98.2
Other Health Impairment	2	1.2	99.4
Autism	1	.6	100

Table 6.7: Disability status for females

Type of Disability	Frequency	Percent	Cumulative Percent
No Disability	33	20.5	20.5
Learning Disability	52	32.3	52.8
Emotional Disorder	5	3.1	55.9
Mental Retardation	63	39.1	95
Orthopedic Impairment	1	.6	95.7
Other Health Impairment	4	2.5	98.1
Autism	1	.6	98.8
Speech	2	1.2	100

Students from culturally and ethnically diverse backgrounds were recruited as participants. Once again, data on racial characteristics were not available for all students, but **Table 6.8** presents the racial breakdown for those students for whom this data was available.

Table 6.8: Racial category for group as a whole

Racial or Ethnic Status	Frequency	Percent	Cumulative Percent
Native American	2	.6	.6
Asian-American	6	1.7	2.3
African-American	78	22.5	24.8
Hispanic	61	17.6	42.4
Caucasian	197	56.8	99.2
Middle Eastern	3	.8	100

Scale Descriptive Statistics

The descriptive statistics for each domain, subdomain and total scores from the sample norms are provided in **Table 6.9**. Tables **6.10** and **6.11** provide these same statistics by gender.

Table 6.9: Descriptive statistics for group as whole

Variable	Mean	SD	Min	Max	Variance
Autonomy	63.35	15.50	0	92	240.23
Self-Regulation	9.78	4.95	0	21	24.54
Psych. Empower.	13.28	2.64	4	16	6.97
Self-Realiz.	11.11	2.25	3	15	5.08
Total Score	97.52	19.43	14	138	377.52

Table 6.10: Descriptive statistics for males

Variable	Mean	SD	Min	Max	Variance
Autonomy	63.41	15.59	0	96	242.96
Self-Regulation	9.44	5.01	0	21	25.08
Psych. Empower.	12.90	2.84	4	16	8.06
Self-Realiz.	11.00	2.25	3	15	5.05
Total Score	96.75	19.30	28	138	372.61

Table 6.11: Descriptive statistics for females

Variable	Mean	SD	Min	Max	Variance
Autonomy	63.54	16.09	0	96	259.04
Self-Regulation	10.28	5.12	0	21	26.24
Psych. Empower.	13.42	2.30	5	16	6.43
Self-Realiz.	11.10	2.30	3	15	5.31
Total Score	98.35	20.43	14	134	417.31

Gender, Age and Type of Disability Effects

To examine the impact of gender, age and type of disability on total and domain scores, multiple analyses of variance were performed. These are reported below.

Statistical Analysis of Gender Differences

There were no significant differences between males and females on the overall self-determination scores, despite the fact that females scored slightly higher than did their male counterparts. Likewise, there were no significant differences by gender on the *Autonomy* subdomain scores. Females scored higher on this subscale, and individual analyses of the subdomain areas indicated significant differences between genders in the *Independence*: Self- and Family Oriented Functions subdomain [$F(1, 431) = 5.92$, $p = .01$] and the *Acting on the Basis of Preferences, Beliefs, Interests and Abilities* subdomain [$F(1, 431) = 6.08$, $p = .01$].

There were no significant differences for the *Self-Regulation* domain scores based on gender. There were significant differences on the *Psychological Empowerment* domain with females scoring in a more positive direction [$F(1, 431) = 4.06, p = .04$]. There were no significant differences by gender on the *Self-Realization* domain.

Summary of Gender Differences

There were no differences by gender for scale scores overall. Domain and subdomain differences existed in three areas. First, females were more likely to assume responsibility for self and family-care activities, a finding not surprising given the sex-role stereotyping of females as caregivers. There were also differences in the Personal Expression subdomain indicating that females were more self-determined regarding their personal appearance and expression. Once again, this is not surprising given the pressure on girls and young women to conform to societal standards of self-care. However, since there were no overall effects for *Autonomy* scores by gender, findings from subdomain areas need to be interpreted with caution.

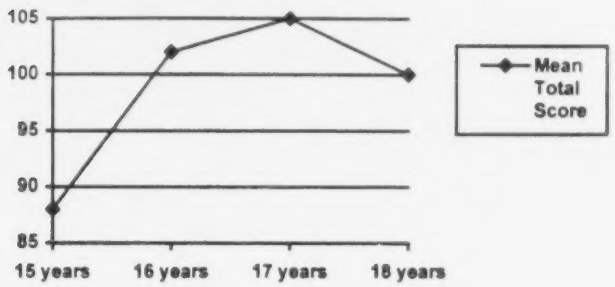
A somewhat surprising finding was that females were more psychologically empowered than males. Research has suggested that young women with disabilities are at greater risk to experience learned helplessness, a finding not necessarily supported by this sample.

Statistical Analysis of Age-related Differences

Age-related differences are more difficult to predict on *The Arc's Self-Determination Scale* primarily because essential elements of self-determination show differential developmental patterns. These will be discussed after the statistical analyses. These analyses were conducted for the group as a whole only for students between the ages of 15 and 18. Too few students were 19 or over, and since they were all students with mental retardation, age related differences were confounded with disability status.

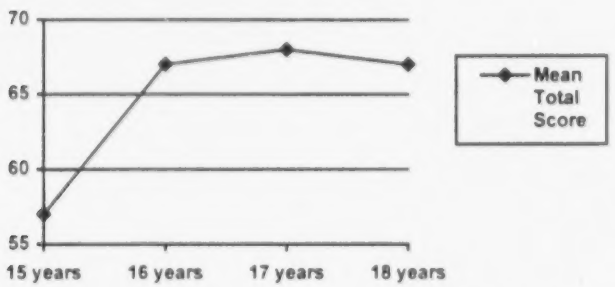
There were significant differences between groups based on age for total scores [$F(3, 147) = 5.447, p = .001$]. As shown in **Figure 6.1**, scores progressed generally from lower to higher based on chronological age. Posthoc analysis using Scheffe' indicated differences at the .05 level between age 15 and ages 16 and 17.

Figure 6.1 Mean scores by age for total



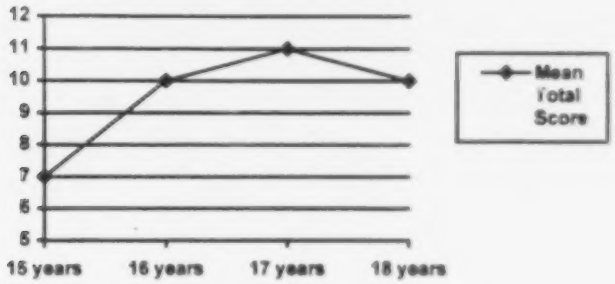
There were significant differences by age on scores from the *Autonomy* domain [$F(3, 147) = 3.72, p = .01$]. As seen in **Figure 6.2**, the positive correlation between age and higher scores continued. Scheffe' tests found that differences were between 15 year olds and 16 and 17 year olds.

Figure 6.2 Mean scores by age for autonomy



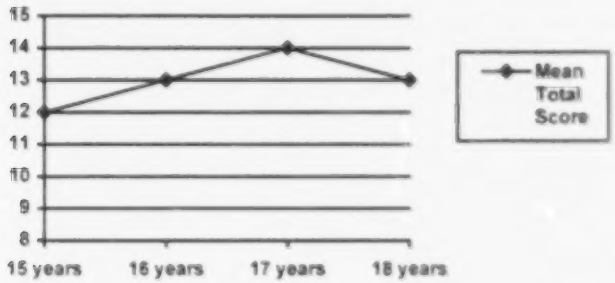
Differences between groups by age on the *Self-Regulation* domain approached significance ($p = .058$) and as shown by **Figure 6.3**, these scores indicated a similar trend of increased competence by age.

Figure 6.3 Mean scores by age for self-regulation



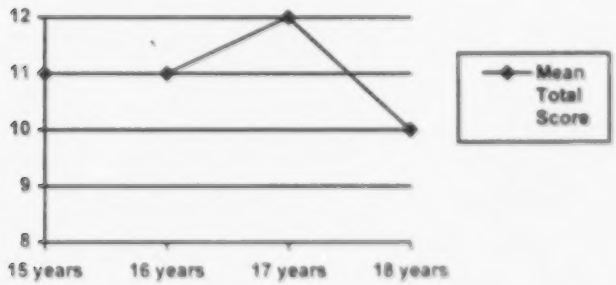
There were significant differences by age on *Psychological Empowerment* scores [$F(3, 147) = 3.58$, $p = .01$] although the trend for these scores was less noticeable than in the previous domains. **Figure 6.4** provides these scores. Scheffe' tests indicated differences between age 15 and 17 only.

Figure 6.4 Mean scores by age for psychological empowerment



There were also significant differences by age in the *Self-Realization* domain [$F(3, 147) = 3.51$, $p = .01$] and, like the *Psychological Empowerment* domain these scores did not show a strong age related trend (**Figure 6.5**). Significant differences occurred between age groups 17 and 18.

Figure 6.5 Mean scores by age for self-realization



Summary of Age-related Differences

Generally, age related changes occurred as might be predicted for each domain. Skill related domains (*Autonomy* and *Self-Regulation*) showed increased skills by age, providing one indicator of construct validity for the Scale. Domains measuring perceptual elements of self-determination did not show such trends, but this too can be expected. The development of perceptions of control and efficacy often go from unrealistically high to more realistically lower. The fact that there was no strong age-trend in the *Psychological Empowerment* and *Self-Realization* domains probably reflects changes on the part of some students who develop more realistic perceptions of control and efficacy with increased age.

Statistical Analysis of Disability-related Differences

Disability-related differences were examined for three groups: Students without disabilities, students with learning disabilities, and students with mental retardation. There were highly significant differences between these groups on total scores [$F(2, 335) = 24.02$, $p > .0001$]. **Table 6.12** shows mean and standard deviation scores by disability status. Posthoc analyses indicated significant differences between students without disabilities and students with mental retardation, and students with learning disabilities and students with mental retardation.

Table 6.12 Disability related differences for total scores

Disability	Mean	Standard Deviation
None	106.58	15.67
Learning Disability	101.87	16.04
Mental Retardation	89.02	21.92

There were significant differences on the *Autonomy* domain scores [$F(3, 352) = 6.65$, $p = .0002$]. As **Table 6.13** indicates, differences in these scores were also between students without disabilities and students with mental retardation, and students with learning disabilities and students with mental retardation.

Table 6.13 Disability related differences for autonomy scores

Disability	Mean	Standard Deviation
None	67.44	12.19
Learning Disability	65.31	13.28
Mental Retardation	60.10	18.32

There were significant differences on the *Self-Regulation* domain scores [$F(2, 335) = 27.45, p > .0001$] with significant differences between all three groups. **Table 6.14** provides the mean and standard deviation scores for this domain.

Table 6.14 Disability related differences for self-regulation scores

Disability	Mean	Standard Deviation
None	13.24	4.08
Learning Disability	11.18	4.45
Mental Retardation	6.95	4.71

There were significant differences in the *Psychological Empowerment* domain scores [$F(2, 335) = 27.45, p > .0001$] with differences between students without a disability and students with mental retardation and students with learning disabilities and students with mental retardation.

Table 6.15 Disability related differences for psychological empowerment scores

Disability	Mean	Standard Deviation
None	14.30	2.30
Learning Disability	13.84	2.25
Mental Retardation	11.81	3.06

There were also significant differences in *Self-Realization* scores [$F(2, 335) = 15.52, p > .0001$] with differences between students without a disability and students with mental retardation and students with learning disabilities and students with mental retardation.

Table 6.16 Disability related differences for self-realization scores

Disability	Mean	Standard Deviation
None	11.60	2.30
Learning Disability	11.54	1.95
Mental Retardation	10.15	2.48

Summary of Disability-related Differences

The trend for all scores, total and domain, was that students without disabilities scored highest, followed by students with learning disabilities and mental retardation, respectively. In all cases the scores from students with mental retardation were significantly different from students without disabilities, as would be predicted. However, scores from students with learning disabilities did not statistically differ from students without disabilities in a number of areas. The sample size for students without disabilities was too small (n = 58) to warrant conclusions based on these results. It is probably true that for students with learning disabilities multiple factors, including a learning disability, account for problems with self-determination. These factors include the total number of failure experiences, type of classroom setting, how much autonomy they are allowed at home, and other factors.

Chapter 7

Reliability and Validity

Validity of The Arc's Self-Determination Scale

Concurrent Criterion-related Validity

Criterion-related validity "refers to the extent to which a person's score on a criterion measure can be estimated from that person's test score. Concurrent criterion-related validity refers to how accurately a person's current test score can be used to estimate the current criterion score" (Salvia & Ysseldyke, 1981, p. 105). This is accomplished by examining the relationship between the scale in question and conceptually related measures, the criterion, that are administered at the same time.

Students involved in the field-test of *The Arc's Self-Determination Scale* completed three conceptually-related measures at the same time; a global locus of control scale, a measure of academic achievement attributions, and a self-efficacy scale. Locus of control was measured using the Adult version of the Nowicki-Strickland Internal-External Scale (ANS-IE) (Nowicki & Duke, 1974). This scale, described in detail in **Chapter 4**, is a global measure of the degree to which students ascribe reinforcement in their lives to internal or external control. Higher scores reflect more external, thus maladaptive, control orientations. Attributions of academic achievement were measured by the Intellectual Achievement Responsibility Questionnaire (IARQ) (Crandall, Katkovsky and Crandall, 1965). The IARQ is a 34 question, forced-choice scale which was constructed for use in educational settings. The scale yields a total internality score, as well as scores reflecting responsibility for success and responsibility for failure. The IARQ measures student beliefs in internal versus external reinforcement responsibility and yields not only a total score (Itot or self-responsibility), but separate subscale scores for beliefs in internal responsibility for successes (I+ score) and failures (I- score) (Crandall, Katkovsky and Crandall, 1965). Like the ANS-IE, the IARQ has been used to measure perceptions of control for youth with cognitive disabilities (Lewis and Lawrence-Patterson, 1989; Rogers and Saklofske, 1985). Higher scores reflect greater degrees of internality.

Self-Efficacy was measured using the Self-Efficacy Scale (SES) (Sherer, Maddux, Mercadante, Prentice-Dunn, Jacobs & Rogers, 1982). The SES is a 23-item self-report scale measuring a general level of belief in one's own competence. Unlike many self-efficacy measures, the SES measures expectations that are not linked to specific situations. Respondents answer a series of statements about themselves using a likert-type response system ranging from disagree strongly to agree strongly. The SES has been shown to have good criterion-related validity, predicting differences in vocational and educational goal achievement, and adequate construct validity as shown by correlations with related scales. The instruments internal stability has been measured at .86. Higher scores reflect more positive self-efficacy.

Total and domain scores from ***The Arc's Self-Determination Scale*** were correlated with students' scores from these measures. **Table 7.1** provides the correlation coefficients and levels of significance for these findings.

Table 7.1: Correlation analysis for conceptually related scales

	ANS-IE	IARQ I+	IARQ I-	IARQ Total	SES
Autonomy	r = -.16	r = .21	r = .17	r = .20	r = .26
	p = .0001	p = .0001	p = .0001	p = .0001	p = .0001
Self-Regulation	r = -.32	r = .28	r = .29	r = .29	r = ..28
	p = .0001	p = .0001	p = .0001	p = .0001	p = .0001
Psych. Empower.	r = -.35	r = .45	r = .25	r = .36	r = .47
	p = .0001	p = .0001	p = .0001	p = .0001	p = .0001
Self-Real.	r = -.27	r = .27	r = .30	r = .27	r = .37
	p = .0001	p = .0001	p = .0001	p = .0001	p = .0001
Total	r = -.26	r = .32	r = .27	r = .29	r = .39
	p = .0001	p = .0001	p = .0001	p = .0001	p = .0001

In and of themselves, significant relationships are not particularly meaningful given the sample size. However, most of the relationships are moderate to strong (.25 to .5) and relationships are strongest in areas one would predict. For example, the ANS-IE and SES should correlate most strongly with the Psychological Empowerment domain scores. This was the case for both domain measures. Another indicator of the strength of the measure was the difference in relationships between the negative and positive subscales of the IARQ. The I+ subscale indicates the degree to which students attribute success internally. The I- subscale indicates the degree to which students internalize academic failure.

Conceptually, higher scores on the Psychological Empowerment domain indicate more internal orientations of success. Thus, the domain score should correlate strongly with I+ scores and less so with I- scores, as seen in **Table 7.1**.

These findings provide evidence of the concurrent criterion-related validity of ***The Arc's Self-Determination Scale***.

Construct Validity

Discriminative Validity

A scale has discriminative validity if it adequately differentiates or does not differentiate between groups that should differ or not differ based on theoretical reasons or previous research. **Chapter 6** describes the results from analyses of the sample used to derive norms for differences according to age, gender, and type of disability. As would be predicted, the Scale differed in most skill measurement areas by chronological age, with older students doing better. Findings from the two domains examining student beliefs (e.g., *Psychological Empowerment* and *Self-Realization*) did not show the age-related trends predicted by the fact that students perceptions of self-determination mature as they age.

The Scale also differentiated between groups based on gender in areas that make theoretical sense (autonomy, self-regulation). However, there were no total score differences by gender. Finally, ***The Arc's Self-Determination Scale*** adequately differentiated between students with cognitive disabilities and students without disabilities.

Factorial Validity

The factorial validity of *The Arc's Self-Determination Scale* was determined by conducting a series of factor analyses, described in **Chapter 3**. These analyses show that factors resulting from the Scale reflect the constructs they are intended to measure.

Other forms of Construct Validity

The Arc's Self-Determination Scale incorporated questions from two unique measures, the *Autonomous Functioning Checklist* and the *Personality Orientation Inventory*, both described in **Chapter 3**. By using two extant measures, both with documentation of validity, the construct validity of *The Arc's Self-Determination Scale* is enhanced.

Reliability of The Arc's Self-Determination Scale

Internal Consistency Reliability

Internal consistency reliability was calculated using Chronbach alpha for the entire Scale, with the exception of the *Self-Regulation* subscale. The open ended answer format of this section does not lend itself to such analysis. Separate analyses were conducted by subscale as well. Coefficient alpha for the Scale as a whole was .90. Alpha for the *Autonomy* domain was .90, for the *Psychological Empowerment* domain was .73 and for the *Self-Realization* domain was .62. Although alpha levels for the last two domains were lower than the first, this is not unusual or unexpected for measurements examining beliefs and perceptions.

Item Statistics by Domain

Table 7.2 presents item statistics, including correlations among items, for items in the *Autonomy* domain. **Table 7.3** provides item total statistics for the *Autonomy* domain. **Table 7.4** provides item statistics and **Table 7.5** item-total information for the *Psychological Empowerment* domain and **Table 7.6** and 7.7 similar information for items in the *Self-Realization* domain.

Table 7.2a Item statistics for Autonomy

Item #	Avg	SD	Correlations Among Items														
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	1.84	952	--														
2	2.04	1.02	259	--													
3	1.88	1.01	181	169	--												
4	2.28	930	286	277	254	--											
5	1.80	1.08	226	139	143	177	--										
6	2.42	888	249	238	269	323	230	--									
7	2.00	957	167	169	195	224	133	297	--								
8	1.16	1.07	254	116	203	121	189	127	179	--							
9	1.86	1.03	245	127	189	254	248	310	197	189	--						
10	1.52	1.12	234	099	125	124	235	208	098	262	303	--					
11	2.16	929	244	119	167	252	197	332	290	145	247	212	--				
12	2.20	967	253	143	171	244	162	232	282	182	208	219	382	--			
13	1.36	1.15	075	060	144	024	129	093	210	194	102	147	194	165	--		
14	2.08	978	214	,066	061	229	163	267	369	141	239	198	328	405	140	--	
15	2.12	1.02	209	174	196	214	132	279	232	241	256	121	246	262	096	274	--
16	2.59	803	229	202	135	375	135	405	251	075	252	133	314	344	- 01	342	314
17	1.86	1.04	193	118	199	180	163	216	278	192	250	168	299	269	219	307	270
18	2.10	924	245	191	141	298	238	267	286	185	236	265	356	358	091	308	267
19	1.97	1.02	202	181	124	185	143	211	306	251	195	183	224	369	158	354	390
20	1.84	1.03	209	165	083	180	066	251	285	202	181	124	206	251	168	228	375
21	1.17	1.16	186	077	162	025	118	064	161	259	169	154	149	125	314	152	181
22	1.50	1.07	194	118	153	087	145	195	269	198	242	207	313	231	385	229	202
23	1.78	997	169	171	200	175	197	167	224	199	187	173	279	239	266	170	216
24	1.58	1.06	228	131	155	175	179	196	161	264	207	249	249	282	188	231	220
25	2.14	1.02	190	183	174	254	138	253	185	152	309	229	220	218	085	260	230
26	1.46	1.19	148	105	111	171	147	145	124	137	206	216	151	131	141	173	179
27	1.54	1.13	132	077	191	127	166	131	136	217	260	244	234	166	167	219	174
28	2.50	888	198	221	164	355	219	330	203	109	322	164	258	315	049	336	250
29	2.54	862	266	180	200	387	169	393	274	089	293	229	302	321	071	395	258
30	2.30	912	250	205	271	283	209	317	322	219	306	219	264	341	107	356	375
31	2.33	1.02	161	168	116	334	171	268	171	108	214	192	188	281	003	342	251
32	2.48	870	215	139	159	363	182	371	224	081	321	183	267	324	014	332	281

Table 7.2b Item statistics for Autonomy

Item #	Correlations Among Items																
	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
16	--																
17	235	--															
18	381	268	--														
19	318	330	461	--													
20	327	174	370	413	--												
21	-.015	283	217	271	212	--											
22	122	349	261	302	254	345	--										
23	226	263	193	198	270	200	404	--									
24	170	257	243	552	238	171	315	408	--								
25	285	259	297	248	190	082	204	242	308	--							
26	095	207	200	219	177	212	308	216	245	278	--						
27	059	273	202	290	170	271	351	290	302	324	422	--					
28	428	211	332	293	169	006	128	201	141	289	086	086	--				
29	502	216	431	329	272	015	150	154	236	356	148	152	589	--			
30	410	340	380	415	315	149	234	181	192	327	116	168	377	481	--		
31	358	159	288	242	201	035	138	138	199	252	081	189	374	459	394	--	
32	431	259	377	276	234	-.01	116	121	194	342	102	070	532	528	451	431	--

Table 7.3 Item-Total statistics for Autonomy

Item Number	Domain Mean if Item Deleted	Domain Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Domain Alpha if Item Deleted
1	60.619	237.020	.421	.244	.895
2	60.419	239.665	.303	.176	.897
3	60.576	238.823	.335	.211	.897
4	60.175	236.892	.437	.314	.895
5	60.655	237.776	.341	.183	.897
6	60.035	236.166	.487	.342	.895
7	60.457	236.260	.445	.283	.895
8	61.301	237.232	.362	.227	.896
9	60.602	234.366	.471	.288	.895
10	60.938	235.774	.386	.232	.896
11	60.290	235.326	.493	.325	.894
12	60.255	234.313	.507	.339	.894
13	61.098	238.978	.280	.246	.898
14	60.376	234.232	.503	.369	.894
15	60.337	234.310	.475	.306	.895
16	59.864	237.421	.493	.438	.895
17	60.597	233.754	.485	.299	.895
18	60.350	233.618	.559	.414	.894
19	60.485	232.314	.542	.429	.894
20	60.617	234.996	.449	.336	.895
21	61.285	237.456	.319	.283	.898
22	60.958	233.482	.478	.389	.895
23	60.679	235.652	.445	.341	.895
24	60.874	234.245	.458	.309	.895
25	60.322	234.335	.476	.304	.895
26	61.003	235.741	.355	.255	.897
27	60.920	234.409	.419	.363	.896
28	59.957	236.176	.487	.475	.895
29	59.920	234.676	.561	.553	.894
30	60.158	233.324	.578	.443	.893
31	60.130	235.676	.435	.343	.895
32	59.975	236.159	.499	.469	.895

Table 7.4 Item statistics for Psychological Empowerment

Item #	Avg	SD	Correlations Among Items														
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	736	441	--														
2	667	471	205	--													
3	782	412	193	148	--												
4	685	464	137	194	125	--											
5	887	316	081	138	165	153	--										
6	846	361	067	-.01	073	027	162	--									
7	825	380	042	106	074	125	248	215	--								
8	822	382	117	-.01	166	089	159	297	186	--							
9	866	341	027	182	134	135	257	097	243	317	--						
10	887	316	179	069	126	142	077	252	078	272	194	--					
11	866	340	016	054	037	199	193	139	191	251	305	209	--				
12	860	347	127	060	157	086	135	278	099	249	175	276	160	--			
13	861	346	-.01	169	053	175	295	074	259	214	366	107	293	137	--		
14	804	397	127	019	148	112	042	137	046	233	098	479	162	211	127	--	
15	875	331	067	096	051	100	225	082	167	175	216	077	369	190	283	036	--
16	894	306	202	080	172	118	196	195	094	206	145	196	162	297	138	142	328

Table 7.5 Item-Total statistics for Psychological Empowerment

Item Number	Domain Mean if Item Deleted	Domain Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Domain Alpha if Item Deleted
1	12.431	6.523	.2352	.	.7324
2	12.500	6.490	.2228	.	.7352
3	12.385	6.511	.2685	.	.7278
4	12.482	6.373	.2803	.	.7281
5	12.280	6.555	.3648	.	.7187
6	12.321	6.582	.2886	.	.7250
7	12.342	6.506	.3078	.	.7233
8	12.345	6.302	.4157	.	.7123
9	12.301	6.413	.4168	.	.7134
10	12.280	6.497	.4025	.	.7155
11	12.301	6.461	.3875	.	.7167
12	12.308	6.464	.3750	.	.7171
13	12.306	6.453	.3842	.	.7163
14	12.363	6.485	.2995	.	.7243
15	12.292	6.557	.3428	.	.7203
16	12.272	6.551	.3844	.	.7174

Table 7.6 Item statistics for Self-Realization

Item #	Avg	SD	Correlations Among Items														
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	487	500	--														
2	688	463	- 02	--													
3	692	461	093	109	--												
4	779	414	009	136	053	--											
5	477	450	011	028	032	056	--										
6	862	345	- 04	171	128	248	017	--									
7	880	324	- 02	098	184	089	011	153	--								
8	834	372	- 03	065	069	151	004	228	128	--							
9	536	450	- 06	- 07	- 03	- 08	120	- 09	027	049	--						
10	637	481	-01	083	063	106	191	059	146	033	- 07	--					
11	884	321	- 06	116	161	129	031	187	234	237	- 02	153	--				
12	621	486	- 01	065	053	117	046	053	081	051	- 02	250	179	--			
13	795	404	- 02	099	105	141	090	061	175	182	- 08	153	253	118	--		
14	899	301	- 04	.179	139	189	056	190	299	234	- 11	085	353	083	207	--	
15	827	378	025	128	151	167	056	204	243	265	- 11	194	313	,084	349	246	--

Table 7.7 Item-Total statistics for Self-Realization

Item Number	Domain Mean if Item Deleted	Domain Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Domain Alpha if Item Deleted
1	10.415	5.4837	-.0257	.	.6000
2	10.215	5.0515	.1954	.	.5517
3	10.211	4.9968	.2246	.	.5456
4	10.123	5.0245	.2567	.	.5397
5	10.426	5.0964	.1451	.	.5637
6	10.041	5.1453	.2618	.	.5412
7	10.022	5.1342	.2954	.	.5371
8	10.068	5.0749	.2752	.	.5378
9	10.367	5.6201	-.0826	.	.6114
10	10.266	4.9153	.2470	.	.5408
11	10.019	5.0119	.3893	.	.5235
12	10.282	4.9750	.2137	.	.5481
13	10.108	4.9423	.3164	.	.5288
14	10.004	5.1011	.3538	.	.5306
15	10.076	4.864	.3994	.	.5155

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Conversion Tables

Table 1

Autonomy: Independence: Routine Personal Care and Family Oriented Functions								
	Percentile Scores			Percentile Scores			Percentile Scores	
Raw Score	Norm Sample	Positive Scores	Raw Score	Norm Sample	Positive Scores	Raw Score	Norm Sample	Positive Scores
1	0	6	7	9	39	13	61	72
2	0	11	8	14	44	14	71	78
3	1	17	9	19	50	15	80	83
4	2	22	10	29	56	16	89	89
5	3	28	11	39	61	17	95	94
6	5	33	12	50	67	18	100	100

Table 2

Autonomy: Independence: Interaction with the Environment								
	Percentile Scores			Percentile Scores			Percentile Scores	
Raw Score	Norm Sample	Positive Scores	Raw Score	Norm Sample	Positive Scores	Raw Score	Norm Sample	Positive Scores
1	3	8	5	35	42	9	85	75
2	6	17	6	49	50	10	93	83
3	12	25	7	63	58	11	96	91
4	24	33	8	75	66	12	100	100

Table 3

Autonomy: Acting on the Basis of Preferences, Beliefs, Interests and Abilities: Recreation and Leisure Time								
	Percentile Scores			Percentile Scores			Percentile Scores	
Raw Score	Norm Sample	Positive Scores	Raw Score	Norm Sample	Positive Scores	Raw Score	Norm Sample	Positive Scores
1	1	6	7	8	39	13	56	72
2	1	11	8	13	44	14	68	78
3	2	17	9	18	50	15	79	83
4	2	22	10	25	56	16	88	89
5	4	28	11	25	61	17	93	94
6	5	33	12	44	67	18	100	100

Table 4

Autonomy: Acting on the Basis of Preferences, Beliefs, Interests and Abilities: Community Involvement and Interaction

	Percentile Scores			Percentile Scores			Percentile Scores	
Raw Score	Norm Sample	Positive Scores	Raw Score	Norm Sample	Positive Scores	Raw Score	Norm Sample	Positive Scores
1	1	7	6	23	40	11	76	73
2	2	13	7	33	47	12	82	80
3	6	20	8	44	53	13	88	87
4	9	27	9	56	60	14	93	93
5	16	33	10	67	67	15	100	100

Table 5

Autonomy: Acting on the Basis of Preferences, Beliefs, Interests and Abilities: Post-School Directions

	Percentile Scores			Percentile Scores			Percentile Scores	
Raw Score	Norm Sample	Positive Scores	Raw Score	Norm Sample	Positive Scores	Raw Score	Norm Sample	Positive Scores
1	1	6	7	29	39	13	78	72
2	2	11	8	39	44	14	82	78
3	6	17	9	48	50	15	88	83
4	9	22	10	54	56	16	91	89
5	14	28	11	63	61	17	95	94
6	21	33	12	71	67	18	100	100

Table 6

Autonomy: Acting on the Basis of Preferences, Beliefs, Interests and Abilities: Personal Expression

	Percentile Scores			Percentile Scores			Percentile Scores	
Raw Score	Norm Sample	Positive Scores	Raw Score	Norm Sample	Positive Scores	Raw Score	Norm Sample	Positive Scores
1	1	7	6	9	40	11	32	73
2	2	13	7	13	47	12	41	80
3	2	20	8	16	53	13	51	87
4	3	27	9	20	60	14	64	93
5	6	33	10	26	67	15	100	100

Table 7

Autonomy Domain Total Score								
	Percentile Scores			Percentile Scores			Percentile Scores	
Raw Score	Norm Sample	Positive Scores	Raw Score	Norm Sample	Positive Scores	Raw Score	Norm Sample	Positive Scores
1	1	1	33	3	34	65	55	68
2	1	2	34	4	35	66	57	69
3	1	3	35	4	36	67	60	70
4	1	4	36	5	38	68	63	71
5	1	5	37	5	39	69	65	72
6	1	6	38	5	40	70	68	73
7	1	7	39	6	41	71	71	74
8	1	8	40	7	42	72	72	75
9	1	9	41	7	43	73	75	76
10	1	10	42	8	44	74	76	77
11	1	11	43	9	45	75	79	78
12	2	12	44	11	46	76	80	79
13	2	14	45	13	47	77	82	80
14	2	15	46	14	48	78	85	81
15	2	16	47	16	49	79	87	82
16	2	17	48	18	50	80	89	83
17	2	18	49	19	51	81	90	84
18	2	19	50	21	52	82	91	85
19	2	20	51	22	53	83	92	86
20	2	21	52	24	54	84	93	87
21	2	22	53	26	55	85	94	88
22	2	23	54	28	56	86	95	90
23	3	24	55	30	57	87	95	91
24	3	25	56	32	58	88	96	92
25	3	26	57	34	59	89	96	93
26	3	27	58	36	60	90	97	94
27	3	28	59	39	61	91	97	95
28	3	29	60	40	62	92	98	96
29	3	30	61	43	63	93	98	97
30	3	31	62	46	64	94	99	98
31	3	32	63	50	66	95	99	99
32	3	33	64	53	67	96	100	100

Table 8

Self-Regulation: Interpersonal Cognitive Problem Solving								
	Percentile Scores			Percentile Scores			Percentile Scores	
Raw Score	Norm Sample	Positive Scores	Raw Score	Norm Sample	Positive Scores	Raw Score	Norm Sample	Positive Scores
1	18	8	5	49	42	9	92	75
2	22	17	6	68	50	10	95	83
3	29	25	7	79	58	11	98	91
4	36	33	8	87	66	12	100	100

Table 9

Self-Regulation: Goal Setting and Task Performance								
	Percentile Scores			Percentile Scores			Percentile Scores	
Raw Score	Norm Sample	Positive Scores	Raw Score	Norm Sample	Positive Scores	Raw Score	Norm Sample	Positive Scores
1	24	11	4	58	44	7	86	78
2	34	22	5	68	56	8	92	89
3	45	33	6	79	67	9	100	100

Table 10

Self-Regulation Domain Score								
	Percentile Scores			Percentile Scores			Percentile Scores	
Raw Score	Norm Sample	Positive Scores	Raw Score	Norm Sample	Positive Scores	Raw Score	Norm Sample	Positive Scores
1	10	5	8	45	38	15	90	71
2	13	10	9	54	43	16	92	76
3	16	14	10	60	48	17	95	81
4	19	19	11	67	52	18	96	86
5	23	24	12	74	57	19	98	90
6	31	29	13	80	62	20	99	95
7	37	33	14	85	67	21	100	100

Table 11

Psychological Empowerment Domain Score								
	Percentile Scores			Percentile Scores			Percentile Scores	
Raw Score	Norm Sample	Positive Scores	Raw Score	Norm Sample	Positive Scores	Raw Score	Norm Sample	Positive Scores
1	0	6	7	4	44	12	30	75
2	0	12	8	8	50	13	44	81
3	0	19	9	11	56	14	59	88
4	0	25	10	17	62	15	79	94
5	1	31	11	23	69	16	100	100
6	2	38						

Table 12

Self-Realization Domain Score								
	Percentile Scores			Percentile Scores			Percentile Scores	
Raw Score	Norm Sample	Positive Scores	Raw Score	Norm Sample	Positive Scores	Raw Score	Norm Sample	Positive Scores
1	0	7	6	5	40	11	55	73
2	0	13	7	8	47	12	73	80
3	0	20	8	14	53	13	88	87
4	1	27	9	24	60	14	96	93
5	3	33	10	37	67	15	100	100

Table 13

Total Self-Determination Score								
	Percentile Scores			Percentile Scores			Percentile Scores	
Raw Score	Norm Sample	Positive Scores	Raw Score	Norm Sample	Positive Scores	Raw Score	Norm Sample	Positive Scores
1	1	1	50	3	34	99	48	67
2	1	1	51	3	34	100	50	68
3	1	2	52	3	35	101	53	68
4	1	3	53	3	36	102	55	69
5	1	3	54	3	36	103	57	70
6	1	4	55	3	37	104	60	70
7	1	5	56	3	38	105	63	71
8	1	5	57	3	39	106	65	72
9	1	6	58	3	39	107	67	72
10	1	7	59	3	40	108	69	73
11	1	7	60	4	41	109	70	74
12	1	8	61	4	41	110	73	74
13	1	9	62	5	42	111	75	75
14	1	9	63	5	43	112	77	76
15	1	10	64	5	43	113	79	76
16	1	11	65	6	44	114	82	77
17	1	11	66	7	45	115	83	78
18	1	12	67	7	45	116	84	78
19	1	13	68	8	46	117	85	79
20	1	14	69	8	47	118	88	80
21	1	14	70	9	47	119	89	80
22	1	15	71	9	48	120	90	81
23	1	16	72	11	49	121	91	82
24	1	16	73	12	49	122	92	82
25	1	17	74	12	50	123	94	83
26	1	18	75	13	51	124	94	84
27	1	18	76	13	51	125	95	84
28	1	19	77	14	52	126	96	85
29	1	20	78	16	53	127	96	86
30	1	20	79	17	53	128	96	86
31	1	21	80	17	54	129	97	87
32	1	22	81	18	55	130	98	88
33	1	22	82	19	55	131	98	89
34	1	23	83	20	56	132	98	89
35	1	24	84	21	57	133	98	90
36	1	24	85	22	57	134	99	91
37	1	25	86	24	58	135	99	91
38	2	26	87	26	59	136	99	92
39	2	26	88	27	59	137	99	93
40	2	27	89	29	60	138	99	93
41	2	28	90	31	61	139	99	94
42	2	28	91	33	61	140	99	95
43	2	29	92	35	62	141	99	95
44	2	30	93	37	63	142	99	96
45	2	30	94	39	64	143	99	97
46	2	31	95	40	64	144	99	97
47	2	32	96	42	65	145	99	98
48	2	32	97	44	66	146	99	99
49	2	33	98	45	66	147	99	99
						148	100	100

The Arc's Self-Determination Scale

Adolescent Version

By Michael Wehmeyer, Ph.D., Principal Investigator
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Self-Determination Assessment Project

The Arc's Self-Determination Scale (Adolescent Version) is a student self-report measure of self-determination designed for use by adolescents with cognitive disabilities. The scale has two primary purposes:

- To provide students with cognitive disabilities and educators a tool that assists them in identifying student strengths and limitations in the area of self-determination; and
- To provide a research tool to examine the relationship between self-determination and factors that promote/inhibit this important outcome.

The scale has 72 items and is divided into four sections. Each section examines a different essential characteristic of self-determination: Autonomy, Self-Regulation, Psychological Empowerment and Self-Realization. Each section has unique directions that should be read before completing the relevant items. Scoring the scale (see Procedural Guidelines for scoring directions) results in a total self-determination score and subdomain scores in each of the four essential characteristics of self-determination. A comprehensive discussion and exploration of self-determination as an educational outcome is provided in The Arc's Self-Determination Scale Procedural Guidelines, as well as detailed scoring procedures and a discussion about the use of self-report measures in general. The scale **should not be** used until the administrator is thoroughly familiar with these issues.

The Arc's Self-Determination Scale (Adolescent Version) was developed by The Arc National Headquarters with funding from the U. S. Department of Education, Office of Special Education Programs (OSEP), under Cooperative Agreement #H023J20012. Questions used in Section One (Autonomy) were adapted, with permission from the authors, from the Autonomous Functioning Checklist. Questions used in Section 4 (Self-Realization) were adapted, with permission from the author, from the Short form of the Personal Orientation Inventory. Appropriate citations for both instruments are available in The Arc's Self-Determination Scale Procedural Guidelines. The Arc gratefully acknowledges the generosity of these researchers.

Student's name _____

Date _____

School _____

Teacher's name _____

The Arc

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Section One
Autonomy

Directions:

Check the answer on each question that BEST tells how you act in that situation. There are no right or wrong answers. Check only one answer for each question. (If your disability limits you from actually performing the activity, but you have control over the activity (such as a personal care attendant), answer like you performed the activity.)

1A. Independence: Routine personal care and family oriented functions

1A. Subtotal _____

	I do not even if I have the chance	I do sometimes when I have the chance	I do most of the time I have the chance	I do every time I have the chance
1. I make my own meals or snacks.	☐	☐	☐	☐
2. I care for my own clothes.	☐	☐	☐	☐
3. I do chores in my home.	☐	☐	☐	☐
4. I keep my own personal items together.	☐	☐	☐	☐
5. I do simple first aid or medical care for myself.	☐	☐	☐	☐
6. I keep good personal care and grooming.	☐	☐	☐	☐

1B. Independence: Interaction with the environment

1B. Subtotal _____

	I do not even if I have the chance	I do sometimes when I have the chance	I do most of the time I have the chance	I do every time I have the chance
7. I make friends with other kids my age.	☐	☐	☐	☐
8. I use the post office.	☐	☐	☐	☐
9. I keep my appointments and meetings.	☐	☐	☐	☐
10. I deal with salespeople at stores and restaurants.	☐	☐	☐	☐

1C. Acting on the basis of preferences, beliefs, interests and abilities: Recreational and leisure time

1C. Subtotal _____

	I do not even if I have the chance	I do sometimes when I have the chance	I do most of the time I have the chance	I do every time I have the chance
11. I do free time activities based on my interests.	☐	☐	☐	☐
12. I plan weekend activities that I like to do.	☐	☐	☐	☐
13. I am involved in school-related activities.	☐	☐	☐	☐
14. My friends and I choose activities that we want to do.	☐	☐	☐	☐
15. I write letters, notes or talk on the phone to friends and family.	☐	☐	☐	☐
16. I listen to music that I like.	☐	☐	☐	☐

1D. Acting on the basis of preferences, beliefs, interests and abilities: Community involvement and interaction

1D. Subtotal _____

17. I volunteer in things that I am interested in.	☐ I do not even if I have the chance	☐ I do sometimes when I have the chance	☐ I do most of the time I have the chance	☐ I do every time I have the chance
18. I go to restaurants that I like.	☐ I do not even if I have the chance	☐ I do sometimes when I have the chance	☐ I do most of the time I have the chance	☐ I do every time I have the chance
19. I go to movies, concerts, and dances.	☐ I do not even if I have the chance	☐ I do sometimes when I have the chance	☐ I do most of the time I have the chance	☐ I do every time I have the chance
20. I go shopping or spend time at shopping centers or malls.	☐ I do not even if I have the chance	☐ I do sometimes when I have the chance	☐ I do most of the time I have the chance	☐ I do every time I have the chance
21. I take part in youth groups (like 4-H, scouting, church groups)	☐ I do not even if I have the chance	☐ I do sometimes when I have the chance	☐ I do most of the time I have the chance	☐ I do every time I have the chance

1E. Acting on the basis of preferences, beliefs, interests and abilities: Post-school directions

1E. Subtotal _____

22. I do school and free time activities based on my career interests.	☐ I do not even if I have the chance	☐ I do sometimes when I have the chance	☐ I do most of the time I have the chance	☐ I do every time I have the chance
23. I work on school work that will improve my career chances.	☐ I do not even if I have the chance	☐ I do sometimes when I have the chance	☐ I do most of the time I have the chance	☐ I do every time I have the chance
24. I make long-range career plans.	☐ I do not even if I have the chance	☐ I do sometimes when I have the chance	☐ I do most of the time I have the chance	☐ I do every time I have the chance
25. I work or have worked to earn money.	☐ I do not even if I have the chance	☐ I do sometimes when I have the chance	☐ I do most of the time I have the chance	☐ I do every time I have the chance
26. I am in or have been in career or job classes or training.	☐ I do not even if I have the chance	☐ I do sometimes when I have the chance	☐ I do most of the time I have the chance	☐ I do every time I have the chance
27. I have looked into job interests by visiting work sites or talking to people in that job.	☐ I do not even if I have the chance	☐ I do sometimes when I have the chance	☐ I do most of the time I have the chance	☐ I do every time I have the chance

1F. Acting on the basis of preferences, beliefs, interests and abilities: Personal expression

1F. Subtotal _____

28. I choose my clothes and the personal items I use every day.	☐ I do not even if I have the chance	☐ I do sometimes when I have the chance	☐ I do most of the time I have the chance	☐ I do every time I have the chance
29. I choose my own hair style.	☐ I do not even if I have the chance	☐ I do sometimes when I have the chance	☐ I do most of the time I have the chance	☐ I do every time I have the chance
30. I choose gifts to give to family and friends.	☐ I do not even if I have the chance	☐ I do sometimes when I have the chance	☐ I do most of the time I have the chance	☐ I do every time I have the chance
31. I decorate my own room.	☐ I do not even if I have the chance	☐ I do sometimes when I have the chance	☐ I do most of the time I have the chance	☐ I do every time I have the chance
32. I choose how to spend my personal money.	☐ I do not even if I have the chance	☐ I do sometimes when I have the chance	☐ I do most of the time I have the chance	☐ I do every time I have the chance

Please check Section One, A thru F, to make sure there is only one answer for each question.

Section Two
Self-Regulation

Directions:

Each of the following questions tell the beginning of a story and how the story ends. Your job is to tell what happened in the middle of the story, to connect the beginning and the end. Read the beginning and ending for each question, then fill in the BEST answer for the middle of the story. There are no right or wrong answers.

Remember, fill in the one answer that you think BEST completes the story.

2A. Interpersonal cognitive problem-solving

33. **Beginning:** You are sitting in a planning meeting with your parents and teachers. You want to take a class where you can learn to work as a cashier in a store. Your parents want you to take the Family and Child Care class. You can only take one of the classes.

Middle: _____

_____

_____

_____

_____

Ending: The story ends with you taking a vocational class where you will learn to be a cashier.

Story Score _____

34. **Beginning:** You hear a friend talking about a new job opening at the local book store. You love books and want a job. You decide you would like to work at the bookstore.

Middle: _____

_____

_____

_____

_____

Ending: The story ends with you working at the bookstore.

Story Score _____

35. **Beginning:** Your friends are acting like they are mad at you. You are upset about this.

Middle: _____

_____

_____

_____

_____

_____

Ending: The story ends with you and your friends getting along just fine.

Story Score _____

36. **Beginning:** You go to your English class one morning and discover your English book is not in your backpack. You are upset because you need that book to do your homework.

Middle: _____

_____

_____

_____

_____

_____

Ending: The story ends with you using your English book for homework.

Story Score _____

37. **Beginning:** You are in a club at school. The club advisor announces that the club members will need to elect new officers at the next meeting. You want to be the president of the club.

Middle: _____

_____

_____

_____

_____

_____

_____

_____

Ending: The story ends with you being elected as the club president.

Story Score _____

38. **Beginning:** You are at a new school and you don't know anyone. You want to have friends.

Middle: _____

_____

_____

_____

_____

_____

_____

_____

Ending: The story ends with you having many friends at the new school.

Story Score _____

2A Subtotal _____

2B: Goal setting and task performance

Directions:

The next three questions ask about your plans for the future. Again, there are no right or wrong answers. For each question, tell if you have made plans for that outcome and, if so, what those plans are and how to meet them.

39. Where do you want to live after you graduate?

☐ I have not planned for that yet.

☐ I want to live _____

List four things you should do to meet this goal:

1) _____
2) _____
3) _____
4) _____

40. Where do you want to work after you graduate?

☐ I have not planned for that yet.

☐ I want to work _____

List four things you should do to meet this goal:

1) _____
2) _____
3) _____
4) _____

41. What type of transportation do you plan to use after graduation?

☐ I have not planned for that yet.

☐ I plan to use _____

List four things you should do to meet this goal:

1) _____
2) _____
3) _____
4) _____

2B Subtotal _____

Section Three

Psychological Empowerment

Directions:

Check the answer that BEST describes you.

Choose only one answer for each question.

There are no right or wrong answers.

42 ☐ I usually do what my friends want... or

☐ I tell my friends if they are doing something I don't want to do.

43 ☐ I tell others when I have new or different ideas or opinions... or

☐ I usually agree with other peoples' opinions or ideas.

44 ☐ I usually agree with people when they tell me I can't do something... or

☐ I tell people when I think I can do something that they tell me I can't.

45 ☐ I tell people when they have hurt my feelings... or

☐ I am afraid to tell people when they have hurt my feelings.

46 ☐ I can make my own decisions... or

☐ Other people make decisions for me.

47 ☐ Trying hard at school doesn't do me much good... or

☐ Trying hard at school will help me get a good job.

48 ☐ I can get what I want by working hard... or

☐ I need good luck to get what I want.

14

49 ☐ It is no use to keep trying because that won't change things... or

☐ I keep trying even after I get something wrong.

50 ☐ I have the ability to do the job I want... or

☐ I cannot do what it takes to do the job I want.

51 ☐ I don't know how to make friends... or

☐ I know how to make friends.

52 ☐ I am able to work with others... or

☐ I cannot work well with others.

53 ☐ I do not make good choices... or

☐ I can make good choices.

54 ☐ If I have the ability, I will be able to get the job I want... or

☐ I probably will not get the job I want even if I have the ability.

55 ☐ I will have a hard time making new friends... or

☐ I will be able to make friends in new situations.

56 ☐ I will be able to work with others if I need to... or

☐ I will not be able to work with others if I need to.

57 ☐ My choices will not be honored... or

☐ I will be able to make choices that are important to me.

Section 3 Subtotal

14

Section Four
Self-Realization

Directions:
Tell whether you think each of these statements describes how you feel about yourself or not. There are no right or wrong answers. Choose only the answer that BEST fits you.

58. I do not feel ashamed of any of my emotions.	☐ Agree	☐ Don't agree	66. I don't accept my own limitations.	☐ Agree	☐ Don't agree
59. I feel free to be angry at people I care for.	☐ Agree	☐ Don't agree	67. I feel I cannot do many things.	☐ Agree	☐ Don't agree
60. I can show my feelings even when people might see me.	☐ Agree	☐ Don't agree	68. I like myself.	☐ Agree	☐ Don't agree
61. I can like people even if I don't agree with them.	☐ Agree	☐ Don't agree	69. I am not an important person.	☐ Agree	☐ Don't agree
62. I am afraid of doing things wrong.	☐ Agree	☐ Don't agree	70. I know how to make up for my limitations.	☐ Agree	☐ Don't agree
63. It is better to be yourself than to be popular.	☐ Agree	☐ Don't agree	71. Other people like me.	☐ Agree	☐ Don't agree
64. I am loved because I give love.	☐ Agree	☐ Don't agree	72. I am confident in my abilities.	☐ Agree	☐ Don't agree
65. I know what I do best.	☐ Agree	☐ Don't agree			

148

Section 4 Subtotal 119

Scoring Step 1:

Record the raw scores from each section:

Autonomy

1A = ☐

1B = ☐

1C = ☐

1D = ☐

1E = ☐

1F = ☐

Domain Total: ☐

Self-Regulation

2A = ☐

2B = ☐

Domain Total: ☐

Psychological Empowerment

3 = ☐

Domain Total: ☐

Self-Realization

4 = ☐

Domain Total: ☐

Scoring Step 2:

Sum each Domain Total for a Total Score:

Self-Determination Total = ☐

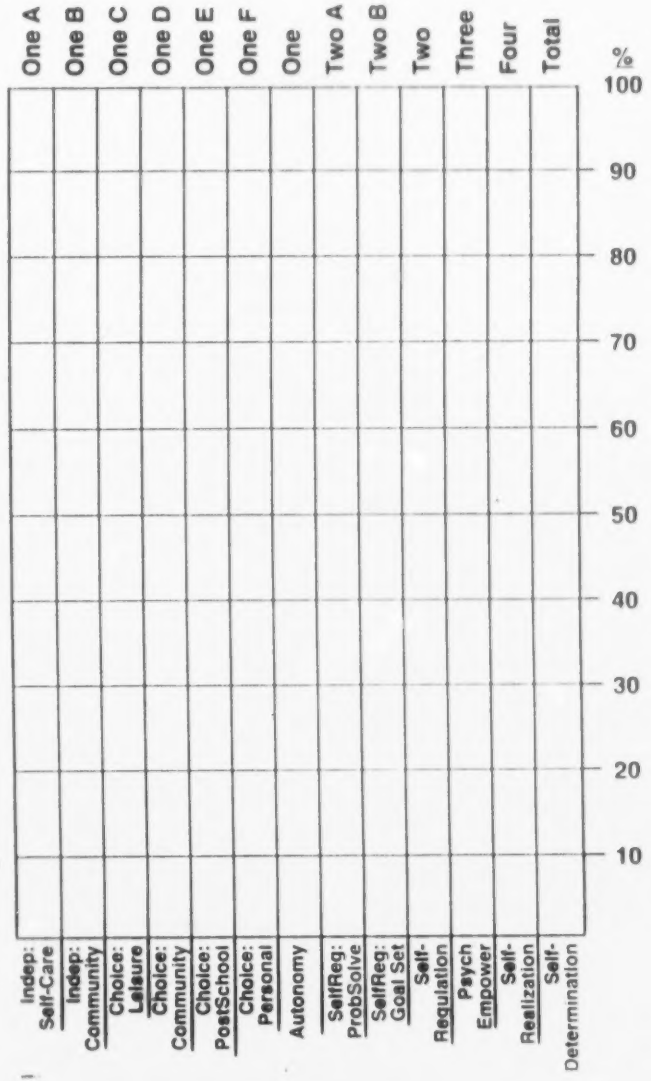
Scoring Step 3:

Using the conversion tables in Appendix A, convert raw scores into percentile scores for comparison with the sample norms (Norm Sample) and the percentage of positive responses (Positive Scores).

	Norm Sample	Positive Scores
Autonomy		
1A =	☐	☐
1B =	☐	☐
1C =	☐	☐
1D =	☐	☐
1E =	☐	☐
1F =	☐	☐
Domain Total:	☐	☐
Self-Regulation		
2A =	☐	☐
2B =	☐	☐
Domain Total:	☐	☐
Psychological Empowerment		
3 =	☐	☐
Domain Total:	☐	☐
Self-Realization		
4 =	☐	☐
Domain Total:	☐	☐
Self-Determination Total Score =	☐	☐

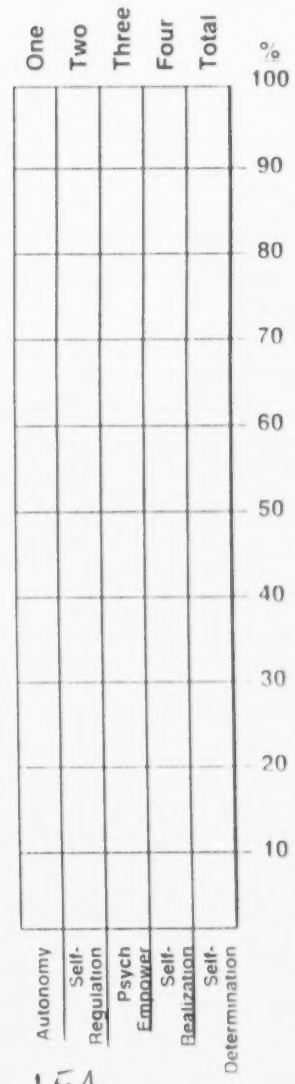
Scoring Step 4:

Fill in the graph for the percentile scores from the norming sample. From the appropriate percentile down, darken the complete bar graph (See example in Scoring Manual):



Scoring Step 5:

Fill in the graph for the percentile scores indicating the percent positive responses.



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